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DEFLECTING ARMOR.

PROJECTILES from modern guns can pierce the thickest armor a ship can carry, provided they strike at nearly right angles to its surface. Guns are enabled to do this because they impart energy to shot gradually; energy is absorbed by the projectile through the whole distance traveled from the breech to the muzzle of the gun. The shot is propelled by an elastic gas at as high a pressure as the gun will bear without rupturing. By the use of slow-burning gunpowder a comparatively large element of time is involved in the operation, by which we are enabled to store immense energy in the shot without injury to the gun.

For illustration, if we fire a shot against a vertical armor-plate, we attempt to resist the immense energy imparted to the shot, during the time of its travel from the breech to the muzzle of the gun, within the almost inappreciable distance that iron will stretch before breaking, and during the infinitesimal time it takes to travel the inappreciable distance.

The result is that we can readily pierce armor more than equal in thickness to the sides of the gun from which the shot was fired.

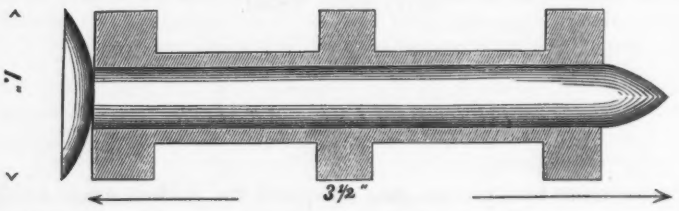
It used to be an accepted axiom in mechanics that a punch would not pierce a greater thickness of iron than its own diameter, but an industrial establishment in Philadelphia now punches a thickness of one and seven-eighths inches with a seven-sixteenths-inch punch. A shot is a punch impelled with its own inertia.

Under these conditions guns can always be made superior in power to the resistance of vertical armor.

But the penetrating power of guns can be still further greatly enhanced by concentrating the power of the powder burned in a large

chamber to overcoming the resistance of a small area of shot. This can best be illustrated by an experiment made by the writer the year after the war. An old flint-lock musket of one inch bore which was obtained at Fort Fisher was used for the experiment; the barrel was carefully rifled, and bolts three-eighths of an inch in diameter and three and one-half inches long were cast of tinner's solder. White pine sabots were made to hold the bolt in the centre of the bore; these were turned and made very light, so as to blow to pieces at the muzzle of the gun. A concave copper gas-check was fitted to a slot in the rear end of the bolt, which took the rifling and gave the bolt the rotary motion.

FIG. 1.



A target was made of four pieces of two-and-one-half-inch hemlock plank, making ten inches in all; the first shot went through the target and through the wall against which it stood, having struck a soft place in the mortar between the stones. The target was then doubled in thickness, making twenty inches, and a bolt fired completely through it and broken up on the stones behind it. Two more thicknesses of plank were then added, making twenty-five inches, and a bolt driven entirely through the target; another thickness of plank was added, making twenty-seven and one-half inches in all, which held the bolt. Further trials showed that sometimes the bolt would be driven entirely through the target, and sometimes it would not entirely clear itself; from this it was inferred that there was a large amount of lateral resistance.

The writer, while serving on the Mississippi River during the war, under Farragut, frequently observed that shot fired from the bluffs, striking the decks of our vessels, would be diverted from their course by the most trifling obstacles, and would pass on with apparently undiminished energy, while great resistance failed to arrest them by direct impact. The wooden deck itself, if struck at an acute angle, would turn a shot from its course without receiving any serious injury; the brass flange of a deck pump or the track of a pivot gun would accomplish the same object when struck at a much larger angle. This led to the observation and study of the ricochet shot, which is simply a shot oscillating between two opposing forces,—the upward deflecting action

of the water's surface and the downward draw of gravity, the initial energy being absorbed by the resistance of the air, the deflections, and the final plunge. From the great distance traveled and the great number of deflections we may form some idea of the insignificant amount of work done to produce a single deflection as compared to that necessary to arrest a shot by direct impact.

If so unstable a substance as water will deflect shot, what a trifling thickness of iron or steel, if properly disposed, would throw off the heaviest projectiles and effectually protect all that it covers!

That a gentle current of air blowing against the side of a shot will swerve it from its course is a fact well known to all riflemen. The shot in this case is not deflected; the aberration from a straight line is the resultant of two forces,—the initial energy of the shot and the pressure of the wind against its side; but it demonstrates what a trifling force will turn a shot from its course if it acts through a period of time. Surgeons inform us that bullets entering the living body follow the course of the least resistance, so that it is very difficult to trace them.

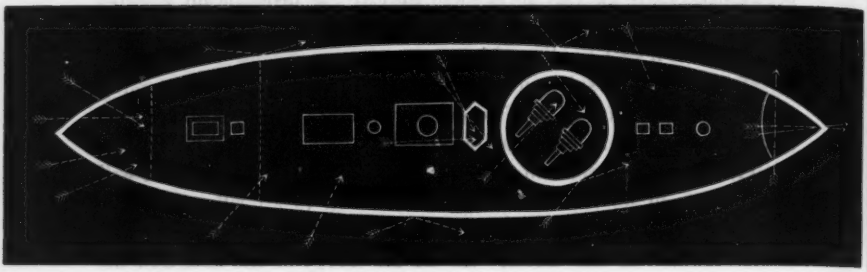
Influenced by the foregoing considerations, the writer came to the conclusion, early in the war, that the only method by which defensive armor could be applied with success was to dispose it at such an acute angle as to make it act by deflection instead of by impact. After arriving at this conclusion, whenever the occasion offered, before going into battle he protected the boilers of the vessel to which he was attached by improvised deflecting armor, in the form of several thicknesses of sheet-iron attached to the vessel's sides and inclined against the back of the boilers, so as to present an acute angle of impingement, to deflect shot which would otherwise pierce them.

Armor is at present arranged to resist shot by direct impact, but the only protection obtained is by deflection. Whenever armor is struck near right angles with the projectiles of modern guns, it is pierced, no matter how great the thickness; *the only protection obtained is when it is struck at an angle sufficiently acute to deflect the shot.* The writer therefore proposes to dispose the armor to deflect the shot from first intention and make no attempt to resist the irresistible, but to arrange the armor at an angle so acute as to make penetration impossible.

Figure 2 represents the deck-plan of the Peruvian ironclad "Huascar," recently captured by the Chilians, which proves the assertion that armor disposed to resist shot by direct impact protects by deflection only. This view of the "Huascar" is taken from *Engineering* of March 5, 1880, and the correctness of the diagram is vouched for by the editor of that journal, having been taken on board the vessel by a special correspondent. The arrows indicate the direction of the shot from the Chilian vessels which struck her. The armor of the "Huascar" was five and a half inches of iron, backed by fourteen inches of teak. The guns used against her were comparatively light; all shot

striking near right angles to the armor's surface pierced it, all striking at an acute angle glanced harmlessly off.

Fig. 2.



1st, Having shown that modern guns can pierce the thickest armor a ship can carry; 2d, That the limit of power of guns has not yet been attained, and that guns can be made far more powerful than those in use at the present time; 3d, That projectiles can be deflected from their course by absorbing but a very small portion of their energy; and 4th, That vertical armor protects by deflection only,—we will next consider the best manner in which to dispose armor to deflect the shot to the greatest advantage.

Fig. 3.

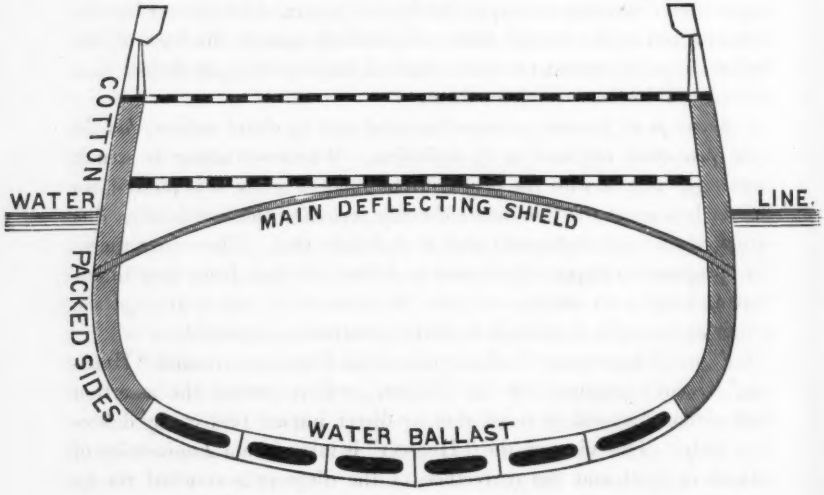


Figure 3 represents a cross-sectional elevation of a war vessel fitted with an interior convex deflecting shield for the protection of the vital parts of the hull. This shield is to be made preferably of low steel, and is to be secured to the sides of the vessel, four or five feet below

the water-line, and is to extend across from side to side in the form of an arc of a circle, rising amidships to two or three feet above the water-line, and dipping at the stem and stern some six feet below it. The shield is to be put on in two layers, plated diagonally to break joints, and secured together with taper rivets with countersunk heads. The vessel is to be built with a double bottom, which serves to trim the shield for action and to give stability under sail by means of water-ballast. A longitudinal central bulkhead runs fore and aft the length of the vessel, and beyond the bows to a ram, which, in combination with the curved shield and the cellular bottom and sides, forms a ram and vessel of unprecedented efficiency and strength.

A vessel of this design constitutes a scientifically constructed floating girder of immense strength, able to carry the heaviest battery, and which we can engine with sufficient power to drive her over the sea at the highest rate of speed in full confidence that her rigidity will maintain perfect alignment of her journals. The cellular sides of the vessel are to be extended above the shield to the spar-deck and packed with cotton prepared to resist fire; the cotton will by its elasticity close up shot-holes as fast as made, thereby excluding water and insuring the buoyancy and stability of the vessel. By dividing the space between the convex surface of the shield and the deck above it into many water-tight compartments, and packing them with cork, the buoyancy and stability of the vessel would be further insured. Or this space could be divided into compartments and packed with ship's stores in thin metallic canisters of such shape as would pack close, the empty canisters always remaining in the compartments.

The curved form enables the shield to present a practically constant angle of impingement to a horizontal shot at the water-line in all the positions the vessel may assume by rolling and pitching, and that angle so acute as to make penetration impossible. As the vessel cannot be struck under the shield, nor the shield pierced by shot, nor water get in on top of it, it follows that she cannot be sunk by shot. The vessel above the shield may be completely riddled by shot without impairing her buoyancy or stability.

More damage is done by projectiles at their exit from a vessel than at their entrance; this is particularly the case with percussion-shell, and herein exists one of the advantages of the curved shield, as it completely protects the far side of the vessel at the water-line.

Safely protected beneath the main deflecting shield would be the five vital factors of a man-of-war,—namely, the magazine, the motive-power, the steering-gear, the hull below the water-line, and the *personnel*. The guns with the men to serve them, and the commanding officer, are to be protected in separate deflecting gun-shields on the spar-deck. This will give any desirable height of freeboard.

If we present a solid, unyielding resistance to projectiles, we invite

destruction to our armor; if we present a yielding, elastic resistance, the energy of the shot is absorbed without injury to the armor, in like manner as it was imparted to it without injury to the gun. Time is an important element in each case.

By the use of thin plates of a good quality of low steel, disposed at an acute angle, we present an elastic resistance, distribute the effect of the shot over a larger surface of armor, insure the necessary element of time by application of the inclined plane, thereby deflecting the shot slightly from their course by absorbing a very small portion of their energy and permitting them to pass on and expend their great excess of energy elsewhere.

The armor proposed is specially adapted to light-draught vessels. Judging from experience, the writer believes that two inches of sheet steel disposed at an angle of fifteen degrees would give ample protection. Two inches of armor would represent but about sixteen inches of the draught. The British Admiralty have recently built several vessels with armored decks over the boilers and machinery; these decks are situated a foot or two below the water-line. The only purpose that such decks could answer would be to resist the vertical impact of exploding shells. When a vessel provided with such an armored deck rolled in a sea-way, she would be apt to receive shot under the deck; the curved shield would be liable to no such contingency. The flat-armored deck gives but very little strength to the vessel, while the curved shield tied in by the chords of its arc is an element of immense strength. The flat deck requires to be placed below the water-line, thereby encroaching upon the space necessary for the boilers and machinery, while the curved shield rises above it, thereby giving the desired space. The curved shield gives complete protection to the water-line, while the flat deck gives none whatever. The writer's design for the curved shield became known in England last spring; the British Admiralty have since ordered three vessels now building, named respectively the "Leander," "Phaeton," and "Arethusa," to be fitted with a similar design; but they no doubt arrived at the idea independently, as it is nothing new in the history of invention for different persons, living in widely-separated regions, to adapt the same means to the attainment of a given end.

The application of the principle of deflection as a means of defense is probably as old as primitive man. The shields of the ancient Roman soldiers were of a curved form, so that when struck by an adversary's battle-axe the weapon would glance off, and before it could be raised again the short sword from behind the shield had done its work.

Every one of experience admits the practicability of deflection, provided the angle of impingement be made sufficiently acute. The more acute the angle of impingement, the less thickness of armor required to deflect the shot. Heretofore the advocates of deflection have constructed

their vessels with exterior armor, they have attempted to protect with defensive armor the entire hull; and in order to do this and maintain a sufficient margin of flotation, the angle of impingement was made so large as to admit of easy penetration by projectiles. If the sides of the turtle-back were submerged, the angle of impingement above the water-line was reduced, as was also the margin of flotation, and the vessel rendered liable to be sunk by the admission of a very small quantity of water. The plan proposed does not contemplate the protection of the entire vessel. The shield is merely intended to protect the water-line, and it is proposed to make the parts of the ship above the shield as free and unobstructed for the passage of shot as the requirements of a sea-going vessel will permit. The upper works are not of vital importance; and if the guns and men to work them are protected by appropriate deflecting armor, the less resistance offered the less injury will be received.

By the use of exterior armor and by springing the arc of the turtle-back from below the water-line, the horizontal angle of impingement above it can be made very acute, so as to make penetration impossible. A shot striking the ship's side would make a clean round hole, which would be immediately closed by the elastic cotton packed in the cellular sides, then, striking the shield at an acute angle, would be deflected upward and outward far above the water-line. A shot striking the side of an ordinary vessel near the water-line would most probably tear a large hole at its exit on the far side; if it struck one of the transverse frames, and its velocity was much reduced, it would be apt to tear loose an entire plate, admitting so great a volume of water as to engulf the vessel at once. As the deflecting shield rises in the centre of the vessel considerably above the water-line, the far side of the vessel is efficiently protected by it; and even if the ship should roll to to the shot, so that the shot would make its exit below the water-line, the shield would remain as a barrier to the entrance of water below it.

It may be objected that the form of armor proposed is vulnerable to plunging shot; in answer to which, it may be said that the weight necessary to protect a vessel with deflecting armor is much less than would be required to give an equal measure of protection by vertical armor, and the difference in weight would give an advantage in speed sufficient to enable the vessel protected with deflecting armor to choose her own position.

It may also be objected that the proposed armor would not serve as a protection against shot fired from a distance, so as to drop upon it at a large angle. It is assumed that no officer of experience would urge such an objection: the difficulty of landing a shot on any given horizontal surface would make such a course very expensive in ammunition. The difficulty of striking such a mark is extremely great when the

gun is fired from a stable platform on land; and if it were fired from a vessel rolling at sea, it would make such an expedient a mere waste of ammunition. Besides, as the longitudinal axis of a shot in its flight always remains parallel to the bore of the gun from which it is fired, it would strike the shield sideways; which fact, in connection with its loss of energy due to its lengthened flight, would make such projectiles the cause of but little anxiety.

In order to guard against square-headed punching shot, which might otherwise penetrate the deflecting shield, it is proposed to cover its surface with a system of "sliding deflectors," the object being to ride projectiles on them up the convex surface of the shield and deflect them off. These could be made of several forms, the more simple being like shingles on a roof, only in reverse order, and slightly attached to the main shield by screws or tap-bolts, so as to be carried away by projectiles. As every man is to be protected by appropriate deflecting armor, no damage could be done by these deflectors when torn loose.

If these "sliding deflectors" were made of sheet steel, square in form, with all four sides beveled, so as to freely slide over one another, and dished in the centre, so as to leave an insterstice between their inner surface and the surface of the main shield, they would act as very stiff springs and add another increment to the elastic resistance with which it is proposed to meet projectiles by lengthening the period of their contact with armor.

The British Admiralty have made experiments on deflecting armor, and found that square-headed shot could not be made to bite at a less angle than 11°. This was with the chilled Palliser shot under the most favorable conditions, at short range. With the deflecting armor proposed it is not intended to use a greater angle than 15°, and it is assumed that the sliding deflectors will cover the margin of danger between 11° and 15°.

The chief of the Bureau of Construction of the Navy Department has decided that the curved shield as described "is entirely impracticable on account of the room and storage of the ship being interfered with." If the prime object of a war-vessel were to carry freight, this objection would have great weight. Precisely the same objection was made against the introduction of steam for war-vessels. It was said that the boilers, engines, and fuel required would take up all the room in the ship and leave no space for the men, guns, stores, etc. Besides, it was asserted that the boilers would be pierced by shot and all hands scalded with hot steam, and fire from the engine department would jeopardize the magazine to such an extent as to make the use of steam power entirely impracticable; even to this day the galley fire is put out on going to quarters, while a hundred times as much fire remains undisturbed in the engine department.

In spite of these serious objections room was found for steam power

on war-vesssels, and after its utility and practicability were proved no war-vessel was built without it.

The three prime requisites of a man-of-war which have to be fulfilled to the highest degree, even to the exclusion of other considerations, are stated in the order of their importance: 1st, Defensive power; 2d, Offensive power; 3d, Mobility. A vessel without defensive armor in a combat with one protected with it would soon be sent to the bottom: no matter how much stowage capacity she might have for stores, if her water-line was unprotected, it would avail nothing. The first prime requisite is defensive armor, and of this the part protecting the water-line is of paramount importance, as a vessel would not be able either to use her guns to destroy an enemy, or her motive power to ram or to escape from a more powerful adversary, if she could not be kept afloat.

The guns of war-vessels of the future will be worked by hydraulic power; by the use of this agent one man can more efficiently handle a gun than fifty men can by the old method. Far less men will be required to man a ship, and far less stowage-room required for stores to feed them. If the ship's stores were put up in canisters of thin sheet metal of rectangular form, so as to stow closely and exclude water, and were packed in the water-tight compartments forming store-rooms on top the shield, every cubic foot of space would be utilized.

With guns sufficiently powerful to pierce armor three feet in thickness, and the limit of power by no means attained, it would seem to be time that some means of defense was applied other than that of direct resistance, which has been tried and found wanting; the form of armor proposed presents an inclined plane combined with elastic lateral resistance, whereby the shot is thrown off without injury to the armor.

A miniature deflecting shield may be made for experiment by driving two nails in a board at such a distance apart that a carpenter's hand-saw would require to be curved to be placed between them; the curved surface if struck at an acute angle will be found impenetrable to shot from small-arms.

The writer saw the monitor "Tecumseh" go down in Mobile Bay, carrying with her Captain Craven, under whom he formerly served, and more than a hundred officers and men. The plan of construction herein proposed will produce a ship, and not a coffin,—a feature that should commend it to the favor of every seaman.

A future communication will describe deflecting shields for the protection of men and guns, with the method of mounting guns, etc.

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NOTES ON TURKISH ARMY ORGANIZATION IN 1879.

FROM THE GERMAN.[1]

To obtain information concerning the numerical force of regular troops which Turkey has at her disposal in the event of war is an exceedingly difficult matter. By far the greater part of the Turkish possessions are so widely separated from us in consequence of their low degree of civilization, and are so inaccessible to us by reason of defective means of communication, that any correct calculation of the strength of the Ottoman forces seems wellnigh impossible. This is especially true of the remote provinces, which are held by only a very loose bond under the sway of the Sublime Porte. There exists in Asia, no less than in Europe, an aversion to the arbitrary and oppressive acts which emanate from Constantinople; but in the former the boldness engendered by a greater distance can be counteracted only by force of arms, and this alone maintains there the authority of the sultan.

It is necessary, moreover, to take into account the financial disasters which paralyze the energy of the Turkish empire.

It follows that the strength of an active army in Turkey, depending, as it always does, upon the direction and strength of the chance political current that prevails, and upon the no less accidental pecuniary resources that the government has at its disposal, will be as variable as these.

Even the widespread belief that the whole conglomerate population of Mohammedans would, at the first display of the green standards of the Prophet, rush to the aid of oppressed Islam, has been deeply shaken by recent experience.[2] The Asiatic redif troops knew that they could frustrate by flight the design of transferring them to the principal theatre of war, and such as could be collected for national defense had to be taken to the seaports under guard of the gen-d'armerie.

It is, therefore, very questionable whether Turkey, at the outbreak of war, will be able to obtain the numerical strength which the organization of her army calls for, and it is from that point of view that we are to consider the following data in regard to the fighting force of the Ottoman empire:

[1] Die Streit kräfte der Europäischen Staaten. Wien, 1876.
[2] Written in June, 1876.

1.—The Constituent Parts of the Army.

The land force of Turkey comprises

A. The Nizam (standing army).

Infantry.

	Battalions.	Squadrons.	Batteries.
43 three-battalion regiments	129	...	...
43 rifle battalions	43	...	...
1 three-battalion regiment (on Grecian frontier)	3	...	...
1 four-battalion regiment (on Bosnian frontier)	4	...	...
1 battalion (on Albanian frontier)	1	...	...
1 cordon battalion of Niksic	1	...	...

Cavalry.

23 six-squadron regiments	...	138	...
1 five-squdaron Cossack regiment	...	5	...
1 four-squadron Circassian regiment	...	4	...

Artillery.

7 regiments of field artillery, with a total of	...	...	91
1 reserve regiment of field artillery (4 three-company battalions)	...	...	12
8 four-battalion regiments of heavy artillery (three companies to a battalion)	...	...	...
81 independent companies of heavy artillery	...	...	...
35 companies of artillery mechanics (technical troops)	...	...	...
7 pioneer companies	...	...	...
2 two-battalion engineer regiments	...	...	...
1 fifteen-company regiment of mechanics	...	...	...
1 four-company battalion of mechanics	...	...	...

B. The Redif (reserve).

150 redif battalions, I. class (formed in 36 four-battalion regiments and six independent battalions)	150	...	...
56 redif battalions, II. class	56	...	...

C. The Mustahfiz (militia).

D. Irregulars.

E. The corps of Zaptié.

24 regiments, with a total of 408 foot companies, 216 mounted companies, and 21 cordon companies	...	...	...
Grand total	387	147	103

To facilitate the supply and administration of the troops the empire is divided into seven territorial districts, designated by consecutive numbers. Each district is called an ordu.

The latest designations of the various ordu, the stations of their headquarters, and the distribution of the troops are shown in the following summary:

I. Ordu (Guard), Headquarters at Constantinople.

Nizam.

	Battalions.	Squadrons.	Batteries.
Infantry regiments Nos. 1–7	21	...	...
Rifle battalions Nos. 1–7	7	...	...
Cavalry regiments Nos. 1–7	...	39	...
(Cavalry regiment No. 6 is composed of Cossacks; cavalry regiment No. 7, of Circassians.)			
1 regiment of field artillery	...	...	15
1 regiment of reserve artillery	...	...	12
1 pioneer company	...	...	...
Engineer regiments Nos. 1 and 2	...	...	...

Redif.

Redif regiments (I. class) Nos. 1–7	28	...	...
Total	56	39	27

II. Ordu (Danube), Headquarters at Schumla.

Nizam.

Infantry regiments Nos. 1–6	18	...	...
Rifle battalions Nos. 1–6	6	...	...
Cavalry regiments Nos. 1–4	...	24	...
1 regiment of field artillery	...	...	14
1 pioneer company	...	...	...

Redif.

Redif regiments (I. class) Nos. 1–6	24	...	...
Redif battalions (II. class)	24	...	...
Total	72	24	14

III. Ordu (Roumelia), Headquarters at Monastir.

Nizam.

Infantry regiments Nos. 1–6	18	...	...
Rifle battalions Nos. 1–6	6	...	...
Bosnian infantry regiments (1 and 2)	6	...	...
Bosnian rifle battalions (1 and 2)	2	...	...
Grecian frontier regiment	3	...	...
Bosnian frontier regiment	4	...	...
Albanian frontier battalion	1	...	...
Niksic cordon battalion	1	...	...
Cavalry regiments Nos. 1–4	...	24	...
1 regiment field artillery	...	...	17
1 pioneer company	...	...	...

Redif.

Redif regiments (I. class) Nos. 1–6	24	...	...
Bosnian redif regiments (I. class) Nos. 1 and 2	8	...	...
Redif battalions (II. class)	32	...	...
Total	105	24	17

IV. Ordu (Anatolia), Headquarters at Erzeroum.

Nizam.

	Battalions.	Squadrons.	Batteries.
Infantry regiments Nos. 1–6	18	...	...
Rifle battalions Nos. 1–6	6	...	...
Cavalry regiments Nos. 1–4	...	24	...
1 regiment of field artillery	...	...	14
1 pioneer company	...	...	...

Redif.

Redif regiments (I. class) Nos. 1–6	24	...	...
Total	48	24	14

V. Ordu (Syria), Headquarters at Damascus.

Nizam.

Infantry regiments Nos. 1–6	18	...	...
Rifle battalions Nos. 1–6	6	...	...
Cavalry regiments Nos. 1–4	...	24	...
1 regiment of field artillery	...	...	14
1 pioneer company	...	...	...

Redif.

Redif regiments (I. class) Nos. 1–6	24	...	...
Total	48	24	14

VI. Ordu (Irak), Headquarters at Bagdad.

Nizam.

Infantry regiments Nos. 1–5	15	...	...
Rifle battalions Nos. 1–5	5	...	...
Cavalry regiments Nos. 1 and 2	...	12	...
1 regiment of field artillery	...	...	11
1 pioneer company	...	...	...

Redif.

Redif battalions (I. class) Nos. 1–6	6	...	...
Total	26	12	11

VII. Ordu (Yemen), Headquarters at Sana.

Nizam.

Infantry regiments Nos. 1–5	15	...	...
Rifle battalions Nos. 1–5	5	...	...
Cavalry regiments	...	...	...
1 regiment of field artillery	...	...	6
1 pioneer company	...	...	...
Total	20	...	6

Coast of the Black Sea.

Nizam.

The nizam troops are replaced by the marine troops.

Redif.

	Battalions.	Squadrons.	Batteries.
Redif regiments (I. class) Nos. 1–3	12	...	...
Total	12	...	...
Grand total	387	147	103

Each ordu district is subdivided into as many battalion recruiting districts (*merkez*) as there are nizam battalions in the ordu; and each recruiting district must, in accordance with the plan of organization, furnish four battalions of foot troops,—viz.,

1 nizam battalion.
1 redif battalion (I. class).
1 redif battalion (II. class).
1 battalion of mustahfiz.

The Black Sea coast is subdivided into twelve recruiting districts, each of which must furnish

1 redif battalion (I. class).
1 redif battalion (II. class).
1 battalion of mustahfiz.

If the plan of organization were carried out, the infantry of the Turkish army would contain

Nizam	172 battalions
Redif (I. class)	184 "
Redif (II. class)	184 "
Mustahfiz	184 "
Cordon infantry	9 "
Total	733 battalions

How far the plan is from being carried out is shown in the preceding summary, in which it is to be noticed that, on account of the deficiency in the cadres, the 56 redif battalions can be put into the field only at much less than their nominal strength.

2.—Details in Regard to the important Army Elements.

A. Nizam.

Infantry.

(*a*) Designation.

The infantry regiments and rifle battalions of the nizam, as the foregoing summary shows, are numbered separately in each ordu. With the exception of the Bosnian regiments and rifle battalions, they have no special designation.

(*b*) Uniform.

Light-blue "spencer," with red border, light-blue waistcoat and pantaloons, black leather body-belts over a red woolen girdle, dark-blue cloak, light-colored laced shoes or gaiters.

The head-covering is the square high fez, after the Tunisian fashion.

The rifles are distinguished from the infantry in this one respect, that they have red cuffs upon the sleeves instead of the simple red border.

The uniform for the officers consists of a long single-breasted blue "tabard," in the European fashion, together with blue pantaloons. In other respects it is the same as for the private soldiers.

(*c*) Arms and Equipment.

The infantry and rifles are armed with breech-loaders of the Snyder system.[3] For side-arms, the infantry carry, in addition to the bayonet, a light pioneer sabre. The rifles are provided only with the yataghan.

Each man carries two cartridge-boxes attached to the body-belts, a black leather knapsack, a haversack, a large canteen, and a party-colored blanket, which is strapped in a roll upon his knapsack. The men are provided with ammunition as necessity requires. The proportion is not fixed. It is carried in chests, each containing a thousand rounds. Each battalion is supplied, on the average, with one hundred of these chests.

(*d*) Strength of an Infantry Company in Time of War.

Captain	1
Lieutenants	2
Sergeants	5
Quartermaster-sergeant	1
Corporals	8
Privates (infantry or rifles)	80
Water-carrier	1
Musicians	4
Total	102

Each rifle company has one sergeant in addition to the above number.

The strength of the company in time of peace is not definitely fixed.

An infantry battalion is composed of 8 companies and the battalion staff (11 men), making a total of 827 men, of whom 773 carry muskets. The rifle battalion has 11 men in addition to the above number.

Each rifle battalion is accompanied by two mountain guns of the

[3] In the course of the war the Turks were extensively armed with the Peabody-Martini, manufactured by the Providence Tool Company.

Whitworth system, under the command of one first lieutenant and two sergeants of the artillery regiment attached to the corps. All servants are mustered with the battalion. Each infantry and rifle battalion carries three marker's flags, which are borne by sergeants of the first, fourth, and eighth companies respectively. The colors of these flags are red for the first company, white for the fourth company, and green for the eighth company. According to a decree of the year 1875, the strength of the battalion on the peace footing is to be determined yearly on the basis of the Army Budget. For that year it amounted to 470 men and 8 pack-horses for an infantry battalion, 472 men and 14 pack-horses for a rifle battalion.

An infantry regiment is composed of 3 battalions, a regimental band (80 men), and the regimental staff (5 men), making a total of 2566 men, 2319 muskets.

The regimental colors, which are carried in the field, show a white star and crescent upon a red ground.

Cavalry.

(*a*) Designation.

The cavalry regiments, like those of infantry, are numbered separately in each ordu.

(*b*) Uniform.

The uniform is like that of the rifles, except that each trooper wears, instead of the laced shoes, a pair of high boots with spurs adjusted with a strap.

(*c*) Arms.

The troopers of all cavalry regiments are armed with the sabre and revolver. In addition to this, the four centre squadrons carry lances adorned with small red flags, while the flank squadrons carry carbines. All sub-officers carry the carbine. The cartridges are carried in a black cross-belt.

(*d*) Strength of a Squadron in Time of War.

Captain	1
Second captain	1
First lieutenants	2
Second lieutenants	2
Sergeants	10
Corporals	16
Farriers	2
Saddler	1
Forage-master	1
Water-carriers	2
Trumpeters	5
Troopers	112
Total	155

The peace strength of the squadron is not definitely fixed.

A cavalry regiment is composed of 6 squadrons and the regimental staff (35 men), making a total of 965 men, of whom 831 are effective sabres.

The peace strength of the cavalry regiment was fixed for the year 1875, on the basis of the Army Budget, at 410 men and 80 pack-horses.

Artillery.

(*a*) Designation.

The artillery regiments bear the number of the ordu to which they are attached.

(*b*) Uniform.

The uniform is the same as for the rifles, except that the horse artillery-men wear high red-topped boots. The cartridges for personal arms are carried in a broad black body-belt.

(*c*) Arm.

The field artillery armament is composed of 3-, 4-, and 6-pounder cast-steel breech-loading cannon of the Krupp system, and the 10-barrel Gatling gun.

(*d*) Strength.

The artillery arm of the service contains horse, foot, mountain, and mitrailleuse batteries, each of which has 6 guns. The guns for the horse batteries are 4-pounders; for the foot batteries, 4- and 6-pounders; for the mountain batteries, 3-pounders. In the horse and foot batteries the guns are drawn by 6 horses; in the mitrailleuse batteries, by 4 horses. The mountain-guns are carried on pack-animals.

The war strength of the various batteries is shown in the following table:

Battery.	Ammunition wagons.	Other wagons.	Men.	Horses.	Pack-horses.
Horse	12	15	168	237	7
Foot	12	15	166	175	7
Mountain . . .	...	...	111	25	54
Mitrailleuse . . .	11	9	133	152	7

An artillery regiment has the theoretical composition of 3 horse batteries, 9 foot batteries, 1 mountain battery, and 1 mitrailleuse battery.

The number of batteries that each regiment actually contains is given in the summary.

B. Redif.

As is shown in the summary, the redif is composed only of infantry.

The regiments bear the number of that nizam division in whose

battalion recruiting district they are raised, together with the name of that district.

In peace the battalions are not formed, but have only an insignificant cadre. When the army is mobilized, they receive the war strength before given for the nizam battalion.

C. Mustahfiz.

The mustahfiz corresponds in name to the German Landsturm (*levée en masse*), but is in no way organized. Hitherto it has existed only upon paper.

D. Irregulars.

The irregulars are composed either of troops raised by levy (Baschi-Bozuks) or of volunteers (Spahis, Bedowwee, etc., etc.).

The first (Baschi-Bozuks, *i.e., mad-heads*), form usually bodies of infantry without any tactical formation. They receive arms and ammunition from the government, but are not otherwise supplied. The Spahis and Bedowwee form bodies of mounted troops, and are for the most part raised from the Arab population. Each troop is under the command of its bey, and, although irregular, they make very serviceable cavalry. However, the government cannot count with any certainty upon such volunteers, since their appearance is always dependent upon the good-will of the bey.

E. The Zaptié.

The zaptié constitute the city and rural police, and form a regiment in each vilajet and a battalion or several independent companies in each sandschak. The zaptié regiment at Constantinople is composed of 5 battalions of 7 companies each, 2 squadrons, and 2 cordon detachments for the Roumelian and Anatolian coasts of the Bosphorus, making a total of 3000 men.

The strength of the corps of zaptié throughout the empire varies from 10,000 to 14,000 men.

3.—Composition of the larger Bodies of Troops.

In the event of war, the troops of each ordu constitute an army corps, and are divided into brigades and divisions. But the disorder which exists in Turkish military affairs has never allowed the theoretical formation to be attained. When necessity requires, the troops are mobilized as they happen to be at hand, and are hurriedly thrown together without much reference to any form. For example, the "military division of Thessaly," which was mobilized in 1857 to take the field against Greece, was gradually raised to the strength of 36 bat-

talions, 13 squadrons, and 11 batteries, without any further organization of this corps into divisions, brigades, etc.

In the same way, during June, 1876, the "Servian Corps of Observation" at Nis was composed of two divisions; but the troops were taken indiscriminately from the nizam and redif, and from four different ordu.

The formation of the troops operating in the Herzegovina and in Bosnia was still more chaotic.

4.—Tactics.

The Turkish tactics are throughout borrowed from foreign armies and are often literal translations, whilst but little attention is paid to the difference between the organization of these armies and that of Turkish troops. For this reason their tactical regulations are often scarcely to be understood; the form seems to be the main thing in all their drills, the application being deemed of but little consequence.

That under such circumstances the tactical improvement should be very slight will be readily understood.

Infantry.

The company is formed in 2 ranks. It is divided into 2 platoons, each platoon into 2 half platoons, each half platoon into 2 sections. The company can be formed in

Line;

Column of platoons, half platoons, or sections;

Column of single or double files.

The fire is delivered by file, by rank, or by company. The bayonet attack is made either in line or in column of sections, and is ordinarily preceded by a skirmish line, which reforms with the company at 80 or 100 paces from the enemy. At this distance the well-known Turkish cry "Allah!" is raised, and the final rush is made. Ordinarily one section is deployed as skirmishers. The skirmish line is followed by one section as a reserve, while the rest of the company follows the line at a distance of about 150 paces. The movements in this formation are always directed by the bugle.

The formations of the battalion are

(*a*) The line in which the companies are arranged according to their order from right to left. Two companies form a division. The right wing of the battalion is called the right half battalion; the left wing, the left half battalion. In the event of their separation each major takes command of a half battalion.

(*b*) Column of companies, platoons, or sections.

(*c*) Column of files, single or double.

The fire is delivered by each company as prescribed for the com-

pany, or by the entire battalion in line. The Turkish infantry places great reliance upon the vigorous fire of large bodies, and therefore it manœuvres preferably by battalions. It is for this reason that their tactics, for the most part, consist in bringing, at the earliest possible moment, whole battalions upon the line of battle, and then endeavoring to decide the struggle by a rapid fire.

As never more than one-fourth of the battalion is thrown forward as skirmishers, the Turkish infantry suffers disproportionately large losses from the fire of modern small-arms. Drills of large bodies of men scarcely ever take place, and, indeed, the formations of the troops are not adapted for movements in such masses. Outpost duty is unknown; nor are any principles laid down for it. The course of proceeding to be followed when in presence of the enemy is left entirely to the pleasure of the commanders. The consequence is an unexampled carelessness which must always cost the Turkish troops dear.

Cavalry.

Instruction in riding consists in teaching the trooper to keep upon his horse and to advance after the Turkish fashion. Anything like systematic instruction does not exist. The horses for remounts are not even broken in, because when bought they have already received such instruction as a Turk thinks necessary. The movements of bodies of mounted troops are entirely without precision. One trooper rides at a walk or pace, another at a trot, while a third gallops. Provided the detachment reaches its destination, the commanding officer pays no attention to these eccentric motions. A body of Turkish cavalry presents the appearance of an irregular force, and, indeed, except as an irregular force, it has but little value. The words of command are very prolix, containing directions for everything that is to be done. As they are repeated by each officer, even by those commanding sections, the multiplicity of commands in manœuvring large bodies results in great confusion.

There are commanding officers of regiments who never mount a horse, so that it need scarcely be said that the higher Turkish officers entertain no illusions in reference to their cavalry and take it into but little account.

Artillery.

The artillery is the only arm which in its development approaches that of European armies, and even this is true of only small masses. The movements are performed for the most part at a walk, rarely at a slow trot, and are made almost entirely in column formations, which necessitate slow formation of line to the front. The mobility of the artillery is very slight, and this arm appears to be better adapted for use in position than for active offensive movements.

5.—Military Service, Recruiting, and Mobilization.

So far as concerns the Mohammedan population, liability to military service is general. The Christians and Jews receive immunity from service on the payment of a special tax.

The time of service for a Mohammedan lasts from the twentieth to the fortieth year of his age. For the infantry the distribution of this time is shown in the following table:

In the nizam	4 years with the colors.
In the nizam	2 years on leave of absence.
In the redif (I. class)	3 years.
In the redif (II. class)	3 years.
In the mustahfiz	7 years.

In the cavalry, the engineer regiments, and the pioneer and artisan companies the time of service with the colors is five years.

By payment of a special tax a Mohammedan can provide a substitute in the nizam. Whoever thus purchases freedom from active service is at once enrolled in the redif.

For recruiting the army, as already explained, the empire is divided into seven ordu districts, and each of these into battalion recruiting districts (merkez). The men for the cavalry, engineer, pioneer, and artisan companies are selected at will from the recruits of all the merkez in each ordu.

The recruiting in each ordu is supervised by a commissioner appointed from district headquarters. The enrollment of those liable to duty in the nizam or redif is determined by lot.

At the drawing of lots, which must be attended by all young men between the ages of twenty and twenty-six years, those who have drawn a number higher than that requisite for enrollment in the nizam are incorporated directly in the redif. Those who are drawn for service in the nizam are sent to the headquarters of the ordu, where the contingents for the cavalry, engineers, pioneer, and artisan companies are selected, and the remainder are incorporated in the infantry and rifle battalions belonging to their respective recruiting districts.

When a general mobilization is ordered the nizam battalions are raised to their war strength by calling in those men on leave of absence. But as the strength of the battalions in time of peace is forced down to its lowest point in consequence of the financial condition of the empire and an incredible corruption in all departments, the contingents on leave of absence are not sufficient to bring the battalions up to the numerical force that the system calls for. The war minister has endeavored to remedy this evil by enrolling the redif in the nizam battalions; yet, in spite of that, the nizam battalions sent to subdue the insurrection in the Herzegovina and Bosnia seldom exceeded the average

strength of five hundred men. The consequence of this mode of procedure, even if successful, brings into the nizam a large entirely untrained element. In fact, the transition from the peace to the war footing has been prepared in a very imperfect manner. The resulting difficulty in mobilization needs no comment.

In each battalion recruiting district are kept the arms and equipment for one nizam battalion, one redif battalion (I. class), and one redif battalion (II. class) on a war-footing. The district is supposed to be in telegraphic communication with the headquarters of the ordu. All this is carried out in the I. Ordu (Constantinople), perhaps with the design of causing the representatives of foreign powers to believe that the Turkish preparations for defense are completely arranged, and the Turkish military power strong.

TASKER H. BLISS.

ANCESTRAL WORSHIP.

PARAPHRASED IN PART FROM CHINESE PRAYERS AT THE TOMB.

I.

THE Dragon guards it in his coils;
The Dragon's pulse on the landscape rests;
The Pearl River flows by the Flowery Isles,
Where gather the egrets with graceful crests;
From terraced rice-fields rain the rills
On the beautiful slopes of a thousand hills;
Temples and tall pagodas grace
The scene, and many a burial-place,
Like this, where, musical in the firs,
Moan the souls of our ancestors.
We pray that prosperous we may be,
Like the melon-creeper and cotton-tree;
Hear us, a grateful posterity,
Enrich us and bless us abundantly!

II.

We come in our dragon-boats, with songs
By the way, and sitars and clash of gongs;
Our prows are the jaws of dragons, their tails
Enwrap the rowers in glittering scales;
We light the red lanterns, and over the stern
The silvery papers we burn and burn.
Lo! sacrificial those papers rise
Smoking and fluttering toward the skies,
And the dews of the spring begin to fall:
The form to the grave, the soul to the hall!
The rivers and forests have genitors; we
Gratefully honor our ancestry.
When the fount is large, the stream flows free;
When the roots strike deep, how tall the tree!

III.

Here, where the Terminalia tread,—
Those Genii of the hills,—we meet;
Hither we come to cheer the dead,
Bringing sweet viands and garlands sweet;
We sit in the circle, the ante-room
Of audience, fronting each hill-side tomb,
And burning the while our golden prayers
With incense warm of the sandal-wood,
Descend from the pure ethereal airs,
Each spirit ancestral great and good!
Like the butterfly to the flowery lea,
Stoop where our redolent offerings be;
Bless, each one, your posterity
With riches and honor abundantly!

IV.

Where the sacred Dragon mounts the storm,
Ancestral guardians! with him ye soar.
Visions and voices the clouds inform
With wrath, rebellion, and woe, and war.
By the terrible banners that blast the sight
Of the impious foe with their hallowed light,
By the battle-gong's tremendous charm,
Be our fathers and mothers safe from harm!
To the land that we love our young men give!
Let the saplings fall that the oak may live!
But we pray, by our filial piety,
While the river runneth tranquilly,
That our lives may flow to the ultimate sea
In continual peace and prosperity!

William Gibson,
Commander U.S. Navy.

THE SIGNAL SERVICE SUCCESSION.

THE appointment of a successor to the late Brigadier-General Albert J. Myer bids fair to be the most troublesome question that has vexed the appointing power for the army in a long time. General Myer was in the prime of life, the youngest head of a bureau in the War Department, and his death was wholly unexpected. Ever since 1872 he had petitioned for and recommended annually in his reports the permanent establishment of the service which he had created. On one or two years the bill for this purpose seemed to have a fair chance of being passed, on other years it was unheeded; and after seven sessions of Congress the only step taken towards any permanency was the act of 1878 providing for the appointment each year of two second lieutenants in the signal corps, to be selected from the sergeants in the same service. At General Myer's death, therefore, the corps consisted of one brigadier-general, four second lieutenants, and a certain number of enlisted men. The other persons connected with it consisted of army officers temporarily detailed and liable to be sent back to their regiments in any emergency, and of certain civilian assistants whose legal status was the same as that of clerks in the War Department.

The vast importance which the weather service branch of the signal office has assumed under General Myer's direction in relation to the commerce and agriculture of the country makes the appointment of his successor a matter of interest to great numbers of people who usually care or know but little about the character of appointments in the army. Again, there is a large class in the army, including its highest and most influential generals, who believe that the signal service is a heavy load for the army to carry on account of its expense, and who desire to see it broken up and scattered in various directions,—the weather service to some bureau of the Treasury or Interior Department, the military telegraph lines to the quartermaster's department, and the military signaling reduced to the small limits it possessed at the close of the war.

Still again, the scientific element in the country insinuates that General Myer was not a scientific man, but merely an appropriator of other men's ideas, and they now desire the establishment of a meteorological bureau, independent of the army and the War Department, with one of themselves at the head of it. At a late meeting of the

American Association for the Advancement of Science a committee was appointed, containing among others some of the professors of the Naval Observatory, "to confer with the President" and secure the transfer above mentioned.

Still again, in the army there is a strong feeling that any officer of distinguished military merit is perfectly qualified for the place, and it should therefore go to a colonel of the line whose services in Indian warfare entitle him to promotion.

Lastly, it should not be forgotten that a lieutenant who has been on duty for ten years in the signal office proposes himself as the proper person for brigadier-general and chief signal officer, and invites the boards of trade throughout the country to organize a "boom" in his interest.

The death of General Myer may, therefore, be said to have left the signal service in a chaotic state, and it is doubtful if there is any other bureau of equal importance in the whole government service whose legal organization is of so slight and temporary a character, which has no recognized chief assistant, and for which so many conflicting opinions and theories would be proposed in the appointment of a chief.

It is the object of this paper to advance arguments in support of two propositions:

1. That it is absolutely essential to the continuation of the present practical benefits of the weather service bureau that it should remain a part of the army, and substantially as now organized, except that a limited number, say ten, of its officers should be permanent.

2. That it is equally essential that the new chief signal officer should be an officer of scientific training, distinguished for scientific research as well as scientific performance. The army register will furnish several names to choose from of officers who fulfill these requirements, and whose records as successful commanders of large bodies of troops in the great war are not surpassed by those of any Indian-fighters.

First, as to the organization of the weather service bureau, it is necessary briefly to examine its history and the nature of its duties. The successful forecast of the weather is due to two fundamental ideas, —viz., the making of simultaneous observations at various points, and the use of the telegraph to bring the records of these observations together for examination and prognostication before the conditions of the atmosphere have changed. For nearly thirty years after the introduction of the electric telegraph neither one nor the other of these ideas had occurred to theoretical students of science. They continued to take meteorological observations at every observatory or other institution devoted to physical science, but the observations were not synchronous, and they were not brought together for comparison for weeks or months after the time when they were taken. They afforded no data for predictions, and were only of the slightest value in deducing general meteorological laws.

More has been done in the ten years since the establishment of the present weather bureau to lay the foundation, after the inductive method, of a *science* of meteorology than in the whole history of the world prior to its establishment.

In 1869, Professor Cleveland Abbé, then at the observatory at Cincinnati, had conceived the idea of receiving meteorological reports by telegraph and using them as the basis for predictions, but both his observations and predictions were necessarily of a purely local character. In order to extend this system it was necessary to take advantage of some branch of the government which had agents scattered over a wide extent of country, and the War Department was immediately selected without dissent as the department whose employees were at once most widely scattered (on land), most permanent, and most subject to discipline.

On the 9th of February, 1870, therefore, the following joint resolution was passed by both houses of Congress and approved by the President,—viz.:

"*Be it resolved*, etc., That the Secretary of War be, and he hereby is, authorized and required to provide for taking meteorological observations at the military stations in the interior of the continent, and at other points in the States and Territories of the United States, and for giving notice on the northern lakes and on the sea-coast, by magnetic telegraph and marine signals, of the approach and force of storms."

This was the origin of the weather bureau. The resolution was passed largely at the instance of General Myer, who had already matured a plan for the observation and warning of the approach of storms as the logical outcome of the system of military signaling of which he was the inventor, and to which he had given nearly fifteen years of study. The work was immediately intrusted to him by the Secretary of War, and so promptly organized that within the same year—viz., on November 1, 1870—twenty-four stations had been established, with instructed observers, simultaneous reports were made by telegraph, and the daily predictions were begun which have been continued without the slightest interruption to the present time. A week later a storm occurred of which due warning was given along the lakes, and this warning alone was of more practical value than all the countless millions of figures accumulated during years at various observatories as "meteorological records."

The service proved itself from the very beginning to be of the greatest value, not only in a utilitarian sense, but as affording the data for a really scientific study of the complex problems involved in the movements of air-currents and the conditions of the atmosphere; consequently it never lacked for support either in or out of Congress, and its development was very rapid. The number of stations increased year by year, penetrating into Canada and the West India Islands.

In 1872 it was directed by Congress to extend its predictions for the benefit of agriculture; in the same year it was given charge of the military telegraph lines; in 1873 it was directed to establish stations in connection with the life-saving stations on the coast; in the same year it undertook the observation of the height of rivers and the warning by telegraph of the approach of freshets and of the existence of low water on bars. In 1874, Professor Henry transferred to it all the meteorological records accumulated in the Smithsonian Institution. In 1873, General Myer attended the Meteorological Congress of Vienna, and there made arrangements for the record of daily simultaneous observations in every civilized country, and for forwarding them to Washington by mail. This made possible the formation of a daily international weather map, and since July, 1875, the conditions of the atmosphere at a certain instant of absolute time in every twenty-four hours have been noted over the whole world and fixed on a map for future study. A year or two later orders were given to all naval vessels, and arrangements were made with nearly all ocean steamships, to take the same observations, thus recording the condition of the air above the sea as well as above the land throughout the whole globe.

The weather bureau, therefore, as now organized, fulfills most admirably two distinct functions,—viz., it is a practical aid of the greatest pecuniary value to navigation and commerce on the high seas, the lakes, and the rivers, and to agriculture; and it is also collecting the data by means of which meteorology can be raised from a mass of dry statistics to the plane of a mathematical science. In both of these duties its operations must necessarily extend over and its observations be derived from a vast extent of our country, into fully one-half of which civilization has only just begun to penetrate, and is represented as yet only by the military posts of the army. Without the active and hearty co-operation and assistance of these army posts and the machinery which binds them together, the observations cannot be conducted beyond the limit of thickly-settled communities. This co-operation and assistance can only be obtained by having the weather bureau under the same authority as the posts themselves,—*i.e.*, the Secretary of War,—and by having the weather bureau a part of the same organization to which the persons at the posts belong,—*i.e.*, the army.

Moreover, the observations must be taken with the regularity of a drill, the observers and their stations must be subjected to constant and rigid inspections, punishments must be quick and severe, tenure of office must depend solely on good behavior, accounts must be kept with the strictest accuracy, and the whole service must be directed by one mind. No system has been or can be devised which meets these requirements so fully as that known as the discipline of the army.

The specific appropriations for the signal service average about half a million of dollars annually; the amount which its officers and men

draw from the army appropriations for pay, subsistence, clothing, and transportation cannot be exactly stated, but is probably about half a million more. The total cost of the whole service is therefore about a million dollars per annum. That it has paid for itself over and again in the saving of shipping will be conceded by every one. That its expense injures the army seems very doubtful. The law specially states that the four hundred and fifty enlisted men of the signal service shall not be counted to reduce the army below twenty-five thousand men, and a large portion of the expense would be necessary in any event in order to maintain the service for military signaling, which is a necessary and essential feature of every modern army.

But, so far from the expense of this service injuring the army, it is much more probable that the signal service benefits the army as well as the country, in spite of the expense. Any active and useful employment on which the officers and men can be engaged in time of peace, without breaking up their discipline, is an argument in favor of the army, is in accordance with the settled military policy of the last sixty years of having a small but highly-trained body of regular military men as the nucleus for large bodies of volunteers in case of necessity, and tends by its usefulness to bring the army into sympathy with the people at large.

It is therefore to the interest of the country that the signal service should remain as now organized, because it has proved successful in a pre-eminent degree, because no other branch of the government offers so many facilities for its operation as the War Department, and because its organization on any other basis would result in delay and a loss of efficiency and economy; and it is equally to the advantage of the army itself, because it employs most usefully a portion of the army without injury to its military qualities.

Secondly, as to the qualifications of the chief signal officer, it is essential that he should combine scientific attainments of a high order with great executive ability; and there is no higher test of executive ability than the experience of large military commands. While it is not claimed that the army monopolizes the scientific knowledge in the country, yet it is stoutly maintained that the holding of a military commission is no barrier to scientific research or attainments, as was implied during the contest over the Western surveys and is now again implied in the committee of the American Association for the Advancement of Science. In the professions based on applied mathematics, such as astronomy, geodesy, surveying, and engineering, the foremost reputations have from time to time been gained by army officers or men who were trained in the army. The names of Bache, Totten, Thayer, Mahan, Bartlett, Church, Mitchell, Graham, Halleck, Humphreys, Barnard, Wright, and many others are ample warrant for this statement. Nor is the army deficient to-day any more than in the past in men

distinguished in scientific pursuits. In active service now, and in the prime of life, are Tower, Newton, Gillmore, Casey, Parke, Warren, Abbot, Comstock, Weitzel, Poe, and others. Every one of these men has devoted from twenty-five to thirty-five years of his life to the active and responsible practice of the mathematical and applied sciences, and every one of them is a well-known authority in some specialty of science. During the past fifteen years every one of them has had charge of the most varied and responsible trusts in public works of improvement requiring that same combination of scientific knowledge and executive ability which is needed in a chief signal officer.

The military services of these officers are no less distinguished than is their scientific ability. Five of them were major-generals of volunteers, and commanded army corps or independent armies in battle; three were brigadier-generals in command of brigades or divisions; two were chief engineers of armies; and one was senior aide-de-camp to the general-in-chief. Moreover, if the memory of the rebellion has not wholly faded, and conspicuous services in it are still to have any weight in making promotions, then the records of the above-named corps commanders ought surely to be recalled, and some tardy measure of reward be bestowed on one of them; for while every corps commander from the line, such as Crittenden, Stanley, Gibbon, Hazen, and others, received a regiment at the close of the war, and has had the rank and pay of a colonel for fifteen years, not one of the above-named corps commanders has ever been advanced one step out of the line of his ordinary advancement by seniority: one has attained his colonelcy but a year since; another is even now only a major; three of them were majors for ten years after the war, and are now junior lieutenant-colonels.

The signal service, including its weather bureau, as now organized, is a department of the highest practical value to commerce as well as to science, but it is in its infancy. Its future possibilities are immense, whether considered from the stand-point of every-day utility or of the advancement of pure science; but its establishment is insecure, and an unfit appointment of a new chief would utterly and speedily destroy it. If it is intrusted to a man who, whatever his talents or achievements in science, is lacking in business experience or the capacity to grasp the management of what in civil life would be considered one of the greatest enterprises of the day,—if, on the other hand, it is given to one who, however distinguished in war against the South or against the Indians, is lacking in scientific education and attainments, and is unable to be the *directing mind* in its scientific investigations,—then we may be sure that meteorology will make no further progress, and that "Old Probabilities" will soon degenerate to the level of the almanac weather-prophets.

LAFAYETTE.

THE people of the United States can never overestimate the friendship for America and the value and importance of the services in behalf of human freedom of General Lafayette. A true hero, he exiled himself from home, affluence, and the closest and dearest of domestic ties to wield upon the side of national and personal liberty the sword of a brave soldier and the influence of one of the best of men. Nor can the people of France lightly pass over the unselfish patriotism and public spirit of their illustrious fellow-countryman. A genuine Frenchman, impulsive, magnanimous, yet possessing the sturdy tenacity of purpose of the American, Lafayette did his utmost to implant within the breasts of his fellow-citizens the love of a pure and exalted republicanism, based upon the intellectual enlightenment of the masses, as he had witnessed it grow up in his adopted country across the sea. France, America's faithful ally in the battle for human rights, though driven from her position of 1789, stands to-day a powerful commonwealth, her corner-stone the constitutional freedom of her citizens. With Washington, Lafayette embodied the spirit of enfranchisement of 1776. What the former did for America the latter tried to do for France.

The Marquis of Lafayette was born September 6, 1757, in the ancient château of Chavagnac, in the province of Auvergne. His father, a colonel of grenadiers in the grand army of Louis XV., fell, at the early age of twenty-four, in the battle of Minden, during the Seven Years' War. Two months later the young widow of the brave colonel was comforted by the birth of an only son, the distinguished subject of this short sketch. The early hours of the heir of this honored house possessed but little promise of his after-life. The boy was born so delicate that all thought he must die in babyhood. Then, as he grew into youth, though mentally bright and inquiring, there was every danger, with the surroundings incident to his station in society, of his being spoiled and pampered into passing mediocrity. At the age of twelve he was placed at the College du Plessis, in Paris, among lads of his own rank, the highest aim of whose tuition and training it was to become enfeebled flatterers about an unprincipled court. He was often at the palace of Louis XV., was made one of the queen's

pages, and enrolled in the king's own regiment of musketeers, receiving a complimentary commission as lieutenant when but fifteen and still in leading-strings. Fortunately, Lafayette was not made of the flimsy material to wither and dwarf in the shade of royal supremacy. He was restive under the treatment.

Having lost his devoted mother at the age of thirteen, and with a heart longing for love, he won and wedded at sixteen the pretty daughter of the Duc d'Ayen, two years his junior; but this child-marriage proved most happy. Declining advancement at court, the youth applied himself to the study of soldiering with ardor and ambition, acquiring no inconsiderable proficiency in the theory of that art, the opportunity alone being wanting to place him high up practically in his profession. Nor was it long delayed. The American Revolution was inaugurated, and the young Frenchman, ardent, generous, aspiring, grasped his virgin sword and gallantly unsheathed it in the thrice-blessed cause of man's emancipation from monarchical tyranny. With eager step he hastened to the side of Washington. Disclosing his purpose to Count Segur, his uncle, and to his brother-in-law, Viscount Noailles, he invited them likewise to unite with him in the honor and glory of the enterprise. He also endeavored to enlist the Count de Broglie under the banner of liberty, but the old gentleman replied, "I have seen your uncle die in the wars of Italy; I witnessed your father's death at the battle of Minden; and how can I be accessory to the ruin of the last and only representative of the family?" But Lafayette was his own master, with a fortune of forty thousand dollars a year, and his mind was fully made up. Becoming acquainted with Baron de Kalb, who was impatient for the same service, he was introduced by him to the agent of the new republic in Paris. Silas Deane welcomed the young marquis with cordial warmth, and gladly accepted his generous services; but American reverses upon Long Island and at White Plains, and the retreat of the little army of patriots into the Jerseys, had cast such a gloom over the interests of the colonies abroad that the credit of the cause was at the lowest possible ebb. Mr. Deane, however willing, was unable to afford the anxious volunteer a particle of aid, and the latter was thrown entirely upon his own resources. Dogged by the emissaries of police, dissuaded by everybody, discouraged by the American envoy himself, but not disheartened at the dark outlook, Lafayette persisted in purchasing a small vessel, which he christened the "Victory," and setting sail from Passage, taking with him De Kalb and ten other European officers, in April, 1777, arrived in America some seven weeks after. As he sailed news of the action at Trenton came booming over the sea, inspiring him with additional zeal to throw himself into the field.

Reaching Philadelphia after about a thousand miles of horseback riding,—for the "Victory" had made the port of Charleston,—a month

subsequent to his landing, he found the American army bivouacked in expectancy of immediate battle. It was the eve of Germantown. While in retreat through New Jersey the colonists had suddenly wheeled upon the red-coats and driven them pell-mell to the Delaware. Howe and the British fleet were at hand; but General Washington crossed the river with ten thousand men and intrenched himself at Germantown for the protection of Philadelphia. Lafayette instantly urged his application for a commission before the Continental Congress, which, charmed with his modesty of bearing and earnestness and sincerity on the side of liberty, created him a major-general in the Continental army, the young soldier being but in his twentieth year. The first meeting of General Washington with Lafayette was at a dinner-party in Philadelphia, and a friendship sprang up that ended only with life.

Lafayette's initiatory services were of the closet and the pen. He wrote scores of pressing letters to his friends and family abroad, urging all to espouse the worthy cause in which he was enlisted. De Maurepas, the old courtier, hearing of this said, "He will end one day by unfurnishing the palace of Versailles to serve the American cause," an impossible piece of vandalism in his sight. When it was told to Lafayette he simply said, "And so I would." At the battle of the Brandywine, September 11, 1777, the young Frenchman was bravely rallying the troops against the advance of the enemy's bayonets when a musket-ball struck him, passing through his thigh and disabling him from further duty during the day.

From Germantown to Yorktown Lafayette was with the commander-in-chief in battle and bivouac: resolute, patient, hopeful, and cheerfully doing his duty. From Valley Forge, during that dreariest season of the war, he wrote home: "The patient endurance of both soldiers and officers is a miracle which each moment serves to renew." Amid these trials the youth was himself uncomplaining. This war was the school from which he meant to graduate with high honors, fully qualified for signal service when the hour for action should come to his native land, as come he saw it surely would before gray hairs mingled with his brown.

In the year 1778 France formed an alliance, offensive and defensive, with the colonies against England. Burgoyne's surrender brought about this event. Franklin, Deane, and Lee were greeted with acclamation as commissioners to the court of Louis XVI. When Lafayette heard of the ratification of the treaty he ran impetuously to Washington, and throwing himself into his arms cried out, "The king has acknowledged your independence, and formed an alliance with you to secure and establish it forever." On Sunday, June 28, 1778, with the thermometer at ninety-six degrees of temperature, the battle of Monmouth was fought and won by the boys in blue and buff. "Never," writes Lafayette, "never was General Washington greater in war than

in this action. His presence stopped the retreat. His dispositions fixed the victory. His fine appearance on horseback, his calm courage roused by the vexations of the morning, gave him the air best calculated to excite enthusiasm."

The services of the young hero were entirely too prominent to escape the eye of a grateful people, duly expressed in the commendations of Congress. But all Frenchmen were by no means Lafayettes, and the general had a painful duty to perform in endeavoring to counteract the indifference and passiveness of a few of the Frenchmen sent over to the aid of the Americans. The Newport affair was a case in point. General Sullivan was deputed to make a night attack on that place, then held by General Pigot with six thousand British. Sullivan would undoubtedly have surprised and retaken the town but for the gross misconduct of Count d' Estaing, in command of the French fleet, who, deaf to the voice of duty and bilious with jealousy at Sullivan's supremacy of rank, defeated the purposes of the expedition by withdrawing his squadron on the very eve of a preconcerted movement in conjunction with the land forces, and covered the incensed army, in the very presence of the enemy, with confusion, who cursed the perverse perfidy of the choleric commodore in right round terms. When the campaign of 1778 was at an end and the patriots were safe in camp again, Lafayette asked for leave of absence for a brief space to carry his trenchant sword back to his own land and wield it for France. On the voyage homeward the general had a narrow escape from murder by mutineers, British deserters who had shipped as sailors in order to seize the vessel and hand it over to their government, hoping thus to purchase indemnity for their offenses; but they were overcome, and to the number of thirty ironed and put under hatches.

The first thing Europe did with the hero of the Brandywine was to arrest him. The King of France placed his illustrious subject in confinement in the Hôtel de Noailles for daring to draw his sword without leave, after which period of punishment, in order to show him that he had a king and master, he was graciously received at Versailles, and became the lion of the day. Lafayette was the link between France and America. Dr. Franklin gave the generous friend of freedom and the faithful ally of the patriots, on behalf of his country, a superb sword. In the Reign of Terror it was buried in the gardens of Chavagnac and the blade destroyed by rust, but in 1791 another blade was fitted to the handle, forged of the bolts and bars of the Bastile. To General Washington he wrote at this time: "Serving America, my dear general, is to my heart an inexpressible happiness." In the spring of 1780 Lafayette returned to America, landing in Boston. The "cradle of liberty" bestowed upon him a welcoming ovation, and he was borne in triumph to the mansion of Governor Hancock, on Beacon Hill; but he hastened to headquarters at Morristown, where he was at once

placed in command of a corps of two thousand light infantry, the vanguard of the army. He behaved with intrepidity and discretion at the siege of Yorktown, in the final assault upon the British defenses leading the storming party, together with General Hamilton, with overwhelming impetuosity. On the 19th of October Lord Cornwallis surrendered his whole army to General Washington, and the American Revolution was ended. The British troops, in pique and shame at having to surrender to victorious rebels, turned their faces toward the French line when they laid down their arms, at which puerile performance Lafayette ordered his fifes and drums to strike up Yankee Doodle, and the men shouted with mirth.

At the termination of the war Lafayette bade adieu to the "Father of his Country" and returned to France, where he was made a field-marshal for his good conduct in America. The people of France, indelibly associating his name with the cause of liberty, greeted him with enthusiasm wherever he went. Lafayette again came to America in the summer of 1784, and visited General Washington at Mount Vernon. In Virginia he met with Thomas Jefferson, Patrick Henry, John Randolph, Madison, Monroe, Lee, Marshall, and other patriots. After resigning his commission to Congress at Trenton, and becoming a naturalized citizen of the United States, he bade a long farewell to the land of his love, and was taken by a French frigate to his native shores. This concluded Lafayette's military connection with America; but France was on the brink of an eruption, and his courage and experience were required at home.

The interval between the glorious close of the American Revolution and the barbarous beginning of that in ill-fated France Lafayette passed in domestic retirement and repose. The summer of 1785 he spent in a tour over the continent of Europe, visiting the courts of Austria and Prussia, where he was received with distinction. In 1786 we see him still in rural seclusion, but in 1787 we find him in the Chamber of Notables, and urging the convocation of the States-General, the three estates of France. Then came the reign of anarchy with rapid strides. During the early stages of the revolution it seemed as if General Lafayette held the very destinies of his country in the hollow of his hand. He drew up the Declaration of Rights for the people. It is a document worthy of the pen of Thomas Jefferson himself, and throughout we readily trace the influences of our own Declaration of Independence. At the time of Lafayette's return from the United States he furnished a residence in Paris. He had hung upon one of the panels an elegantly-framed copy of the American Declaration of Independence, leaving the corresponding space on the opposite wall vacant. "What will you place here?" asked a visitor, pointing to the bare panel. "The Declaration of Rights for France," replied the general. And now he placed it there.

He was chosen vice-president of the National Assembly upon the eve of the great outbreak. The storm burst with precipitate fury. The poor king fled from his capital to Versailles, and the Bastile was destroyed, that gloomy fortress where the twin-brother of Louis le Grand had lain a lifetime underground and died in misery at last. When Lafayette heard, in the hall of the deputies, of this significant event in the history of humanity he exclaimed, "When oppression renders a revolution necessary, insurrection becomes the holiest of duties!" The key of the Bastile was given to the republican general, who sent it to General Washington, with the words, "It is a tribute which I owe as a son to my adopted father, as an aide-de-camp to my general, and as a missionary of liberty to its patriarch." To-day that emblem of the downfall of despotism gently reposes upon the honored walls of Mount Vernon, in the rust and dust of disuse. When the old fortress fell in a blackened ruin the people shouted, "*Victoire! La Bastille est prise!*"

The National Guard, composed of citizen-soldiery, was reorganized, —the fathers, brothers, sons of France sprang into the ranks,—a fine army was soon enrolled whose sympathies were with the people, for it was of the people; and now officers, privates, civilians had one name in their minds to stand at the head of the muster-roll as commander-in-chief. The matter was mooted in the Municipality of Paris and in the National Assembly of France. Who should command the National Guard? It was rumored that the king's troops were on the march from Versailles to give battle to the citizen-soldiers. At this moment of tumult and alarm, in anticipation of attack, Moreau de Saint Méry, president of the electors, arose in the Assembly and without a word pointed to the bust of Lafayette which in 1784 had been presented to the city of Paris by the State of Virginia. The effect was electrical. "Yes! yes!" was the acclaim throughout the hall; "the man we want, the right man, the only one we will have!" and the commander-in-chief was unanimously elected.

On the 17th of July Lafayette, at the head of two hundred thousand men, met the king at Sevres, and brought him back in triumph to the city. Louis XVI. was respectfully escorted to the Hôtel de Ville, where he was saluted by the new mayor, M. Bailly, and presented by Lafayette with the tricolor cockade, which the king at once placed in his chapeau as the volatile populace made the welkin ring with cheers of "*Vive le Roi!*" But the reconciliation was of but brief duration. Murder ran rife: De Launay, lieutenant of the Bastile, and Flesselles had been slain; Foulon, an obnoxious deputy, was, after the mockery of a trial, hung by the mob to *la lanterne;* Berthier, his son-in-law, was also assassinated; Durocher, an officer, was shot dead; a baker who sold scant bread, two thieves, and another were hung to lamp-posts; two men were murdered in the Champs de Mars, and their heads were

stuck on pikes and borne through the streets. But for the sleepless vigilance of the chief of the National Guard outrage and lawlessness would have become universal. In the memoirs of Mirabeau—that "tiger marked by the smallpox"—appears the following note, written by his own hand: "There is one man in the State who from his position is exposed to the hazards of all events; to whom successes can offer no compensation for reverses; and who is in some manner answerable for the repose, we may even say the safety, of the public, and that man is Lafayette."

King Hunger soon began to reign among the purlieus and poorer sections of the city,—a monarch who summarily brought matters to a crisis in the State. Royalty was sumptuously feasting in its summer palace, while the people, whose pittance went to pay the salt-tax, starved in the slums. France was aflame. Versailles was sacked, and the weak Louis, his imperious queen, and the trembling household were dragged to Paris. Through Lafayette's brave protection of an ungrateful family they were saved from death. Communism, the demon of democracy, and as far removed from constitutional republicanism as black from white, or fire from water, held the capital. This is a description of the sorry spectacle. Writes Lavalette: "At twelve o'clock the frightful procession set off. I hope such a scene will never be witnessed again. I have often asked myself how the metropolis of a nation so celebrated for urbanity and elegance of manners, how the brilliant city of Paris could contain the savage hordes I that day saw, and who so long reigned over it! In walking through the streets of Paris, it seemed to me, the features even of the lowest and most miserable do not present to the eye anything like ferociousness or the meanest passions in all their hideousness. Can those passions alter the features so as to deprive them of all likeness to humanity? These madmen, dancing in the mire and covered with mud, surrounded the king's coach. The groups which marched foremost carried on long pikes the bloody heads of the life-guardsmen butchered in the morning. Surely Satan himself first invented the putting a human head at the end of a lance! The disfigured and pale features, the gory locks, the half-open mouths, the half-shut eyes,—images of death,—added to the gestures and salutations which the executioners made them perform, in horrid mockery of life, presented the most frightful spectacle that rage could have imagined. A troop of women, ugly as crime itself, swarming like insects, and wearing grenadiers' hairy caps, went to and fro like furies, embracing and insulting the life-guards. This revolting scene lasted for eight hours before the royal family arrived at the Place du Grève. They alighted at the Hôtel de Ville, their first resting-place during the protracted misery that terminated some years afterward in a horrible death. Thus ended the memorable 6th of October, 1789."

Lafayette had a very delicate and difficult duty to discharge. The

wild hordes of savage men and drunken women, inflamed with the idea that they had achieved a lasting victory over their oppressors, were now not only to be sent back to their miserable dens and hovels in the faubourgs, but to be peaceably disarmed, and, so far as possible, quietly restrained, while the trembling authorities stood idly looking on at the supreme audacity of the measures of relief and subjection so calmly resorted to by the daring hand and fertile brain of the indomitable patriot.

In these early hours of that terrible tragedy Lafayette was the peacemaker. He was consistent, too. He voted for the abolition of titles and renounced his own. Royalty in its prison regarded him as a demagogue, selfish and unscrupulous, although he saved royalty. The king sent for him once and showed him a letter which charged him with seeking the throne himself. Said Lafayette, "The Duke of Orleans is the only prince on whom suspicion of wishing the crown can rest." The queen, searchingly scanning the general's face, said, "It is not necessary to be a prince to aspire to the throne." "At least, madame," answered Lafayette, "I know of no one but he who would desire it." But Lafayette was a true republican to the core. Writes Thomas Carlyle: "Many a formula has this Lafayette, too, made away with, yet not all formulas. He sticks by the *Washington formula*, and by that he will stick, and hang by it, as by sure bower-anchor hangs and swings the tight war-ship, which after all changes of wildest weather and water is found still hanging. Happy for him, be it glorious or not! Alone of all Frenchmen he has a theory of the world, and right mind to conform thereto; he can become a hero and perfect character, were it but the hero of one idea." The foreign enemies of France, seizing upon her moment of weakness, swarmed fiercely upon her. General Lafayette was placed, after fighting several successful battles at Philippeville, Maubeuge, and Florennes, in charge of the troops at Sedan. The revolution raged at Paris. His name was among those of the proscribed. It was imperative that he should fly for his life. America was the haven for which his warm heart longed. With a few faithful followers he set out for some German port. Thus terminated General Lafayette's connection with the revolution. The Reign of Terror set in, and the best blood of France moistened the guillotine athirst for victims. Louis XVI., Marie Antoinette, Madame Elizabeth all went the way of mortality. The "star of Bonaparte" arose. Peace came, and war.

And where was the friend of the people, the soldier of liberty, the disciple of Washington? For five terrible years the prisoner of the enemies of France lay fettered to the floor of an Austrian dungeon. Seized while attempting to escape to America, Lafayette was handed over to Francis I. for safe-keeping. Was he not the arch-republican of Europe? In his transit from Rochefort, where he was arrested, to the prison of Olmutz the Duke of Saxe-Teschen sent an emissary to him to demand

the treasure which it was supposed he had stolen from France. "I am to infer, then," exclaimed the indignant general, "that if the Duke of Saxe-Teschen had been in my place he would have robbed the military chest of his command. Say this to your master, that the generals of France and America were taught in a very different school of morals." When invited by an envoy from the King of Prussia to join the enemies of his country with a field-marshal's baton, he replied, "Return to your master and tell him that I am still Lafayette." In August, 1792, Lafayette was thrown into the dungeons of Olmutz. It was September, 1797, when he emerged from incarceration. His sufferings were dreadful and prolonged. The sullen old stronghold of Olmutz, once a Jesuit convent, had been metamorphosed into army barracks. Its dungeons were vaulted and fenced in by lofty, massive stone walls, the only outlet being through a strongly-fortified cell always guarded. The muddy river Morawa flowed sluggishly by on the south side, along whose banks heavy fogs habitually hung, and the use of the stream as a sewer for the town made the dungeons damp and mouldy, mere cesspools for fever and malaria in every form to stalk and thrive in. The outer walls were six feet thick, and the inner walls four feet. The doors and windows were heavily barred, while five sentinels were on duty day and night. Lafayette was placed in a solitary cell, a chain about his waist was fastened to the floor; it was nearly dark; his food was bread and water. He was kept in entire ignorance of the fate of his family, and for three years and a half knew not whether his wife and children were alive or dead, nor did they know anything of him, even the place of his confinement. He tried to escape, but was captured and treated more rigorously than before. Finally Madame de Lafayette found out his whereabouts, and with her two young daughters was kindly allowed to share his imprisonment. George Washington wrote a letter to the emperor imploring his release, which Francis never noticed. Fox, Sheridan, Wilberforce urged Parliament to compel the British Cabinet to interpose for the liberation of Lafayette in the common interests of humanity; but Austria was deaf to the voice of humanity as the stones of Olmutz themselves.

The court of Vienna was utterly heedless of the voice of reason, the claims of justice, and the appeals of humanity. Base men had dared to hope that Lafayette would be disposed to stain the laurels with which he was crowned, and sacrifice a noble and devoted character, by betraying for personal freedom the liberties of his country. The idea of such perfidy, however, could not approach the heart which never for one moment ceased to glow with a sacred fire of the purest and holiest patriotism. While the calm dignity of Washington, the impassioned eloquence of Fox and Fitzpatrick, and the earnest zeal and logic of Masclet, failed of their office, it was the sword of Napoleon that severed the knot at a single stroke.

At the end of five years French cannon came thundering at the gates of Vienna, and General Bonaparte, at the head of the conquering Army of Italy, demanded the release of the prisoners of Olmutz as an indispensable preliminary to the cessation of hostilities. With cringing compliance the Lafayette family were set free, and but for the war-breeze at the time between America and France would have come to this country and settled among a people who venerated the name of Lafayette next to that of Washington. Two years elapsed, however, before they were permitted to stand upon the soil of France, for it must be remembered that Lafayette was still included in the general proscription. They lived in Denmark and Holland. Upon the universal rejoicing attending the establishment of the consulate the general ventured back to Paris. A stable government was promised at last whose corner-stone should be liberty. But Napoleon eyed the comrade of Washington askance; he doubted his approval of several schemes with which his ambitious brain was teeming, and, with his usual insight, he was right, for Lafayette never yielded up one iota of his stanch republicanism. The friend of Washington and liberty could not consistently be the friend of Bonaparte with an eye to empire.

To the soldier who had helped redeem the thirteen States of America from the dominion of George III., it went very much against the grain to sit still and see his native land fall a willing prey to the ambitious wiles of a Corsican candidate for kingship. News of the decease of George Washington was borne to France early in 1800. On the 22d of February memorial rites were held in Paris. A eulogium was pronounced, but Lafayette's name was in no wise mentioned. The same day the first consul moved into the Tuileries. When the foes of France were pressing upon her borders in army after army and nation upon nation, it was suggested to Napoleon that Lafayette be given a command. "Yes," said the emperor, "he would be of service to us in this, but in other things he might be in our way."

When all his disabilities were removed General Lafayette accepted the electorship for the Department of Seine and Marne. By his restoration to citizenship he was also reinstated in his former military rank in the armies of France.

The home of Lafayette was for many years at Lagrange, a fine estate in the Department of Seine and Marne, some forty miles from Paris. It embraced about a thousand acres of woodland, lawn, and tillage, upon which stood the spacious old baronial castle, with turrets, moat, and drawbridge, such as we see in pictures of feudal times. Here the devoted wife of the general died in 1807, from the effects of her long confinement at Olmutz. Her husband survived her for nearly thirty years. From Lagrange Lafayette looked out upon the dramatic events transpiring in France.

The refulgence of the Napoleonic empire faded into night. Divine right triumphed, and all idea of a republic passed away from the minds of Frenchmen. Like a meteor the exile of Elba flashed in the zenith again, and the turbulence of the Hundred Days distracted the nation. Waterloo was lost, and Bonaparte came flying back a fugitive to Paris. Then the republican of '76 and '89 sprang to his feet. On the 19th of June, 1815, Lafayette hurried to the Chamber of Deputies and urged the unfurling of the tricolor standard of liberty, around which to gather all parties for the salvation of France. Turning to Lucien Bonaparte he said, "Go tell your brother that we can trust to him no longer. We will take care of the country ourselves."

Napoleon fell, but the pursy old King Louis XVIII. ruled in his stead, and the tricolor had to give place to the snow-white flag of the Bourbons. Lafayette retired in chagrin to Lagrange, from which he did not emerge, except as temporary deputy for La Sarth and Meuux, for four years. In 1824, at the invitation of President Monroe, the old hero revisited the United States. Since he had stood upon our soil a generation had gone, thirteen free States had grown to be twenty-four, three millions of people had become nearly twelve millions, and all was prosperity in the republic. Lafayette's tour through the Union was a triumph and ovation from the moment his foot touched our shores to that of his final farewell. Writes Headley, "It is often said that republics are ungrateful; but the United States have given a bright exception to this charge. Congress bestowed upon Lafayette two hundred thousand dollars and a township of land as a partial testimony to the value of his Revolutionary services." At Yorktown, on the 19th of October, the veteran assisted in the celebration of the surrender of Cornwallis forty-one years before. He witnessed the Presidential election of 1824, when Jackson, Adams, Clay, and Crawford were in the field, and John Quincy Adams was elevated to the chair of the chief magistrate. He attended the laying of the corner-stone of a monument to the gallant De Kalb, his former comrade-in-arms, who, after receiving eleven honorable wounds in the cause of independence, had at length gallantly fallen on the plains of Camden. On the 17th of June, 1825, Lafayette participated in the celebration of the fiftieth anniversary of the battle of Bunker Hill, when Daniel Webster was the eloquent orator of the day. The general then visited the various New England States, and, after viewing the battle-fields of Bennington, Saratoga, Germantown, and Brandywine, prepared for a final departure from the beloved land of his faith and prayers to that of his disappointment. In response to the parting words of the old soldier-statesman delivered at Washington, rang out on the air of the capital cheers and acclamations of blessing and farewell. The last public sentences spoken by Lafayette upon the soil once baptized by his blood were addressed to the President and people. "God bless you, sir, and all who surround us! God bless

the American people, the several States, and the Federal Government! Accept this patriotic farewell from an overflowing heart! Such will be its last throb when it ceases to beat!"

During his stay, Lafayette traversed the country from Maine to Louisiana, and peace, prosperity, and soul-felt gratitude sweetly smiled upon him everywhere. Truly, the good man's golden dream of liberty had become true and real in one dear land at least, and freedom flourished here to gladden him anew with hope for France. General Lafayette sailed down the Potomac, in a United States man-of-war, with the Stars and Stripes bravely flying from her masthead, and balmy breezes bore him safely and swiftly homeward under the flag he loved so well, and which he had manfully helped unfurl.

How different the hero's reception in France! Royalty regarded with jealous fear the popularity of the aged republican. The people of Rouen thronging to welcome him, the troops attempted to disperse the crowd and a riot resulted. The people persisting, there was much bloodshed, but the soldiery was driven off. Lafayette left the town in haste to avert further tumult. He was at once re-elected a deputy of the kingdom, however, and participated in the counsels of the realm. Bourbon Louis had given place to Bourbon Charles, but "nothing had been learned or forgotten." Said the flippant Charles X., "I know but two men who have always professed consistent principles, myself and Lafayette. He has been the lifelong defender of liberty, and I the king of the aristocracy." In 1830 it was the same story over again, king against people, the subject against his ruler. Lafayette had beheld on the throne of France Louis XV., Louis XVI., Napoleon I., Louis XVIII., and Charles X., and now he was destined to witness still another revolution. He was rusticating at Lagrange when the *Moniteur* informed him that the crisis had arrived. Making post-haste to Paris, he placed himself at the head of the National Guard and assumed control of the city. A fierce fight with the king's forces filled the streets with turmoil for a few hours, but the nation triumphed and drove forth its foolish despot. Lafayette was invested with the popular dictatorship. The "Three Days of July" had overturned the government, and Lafayette announced that Charles X. was no longer king of France. Then arose the question, "What should be done, who should rule?" Louis Philippe, Duke of Orleans, the richest and stupidest man in France, was eligible by reason of his great good-nature and friendliness to the people. He was created "lieutenant-general of the kingdom" under the constitution, for Lafayette had now learned that the French were not Americans, nor ripe for the republic. At the inauguration General Dubourg said, sternly, to the new Louis, "Sir, you know our wants and our rights. If you forget them we will remind you of them." A grand review was held, and General Lafayette rode along the lines composed of fifty-two battalions of citizen-soldiery

assembled in the Champs de Mars. Not only France, but Belgium, Italy, Spain, Portugal, Poland, and Switzerland were convulsed with the throes of liberty. Europe was shaken as with an earthquake, and "constitution" and "republic" were words which burst from every lip. Lafayette was known and loved throughout Christendom as the founder of liberal institutions and the people's friend.

But the end was near at hand. On February 2, 1834, he was seized with ischury, and on the 20th of May following he breathed his last without a pang and with these words upon his tongue: "Life is but the flame of a lamp. When the oil is burned the light goes out, and all is over." He was buried in the little cemetery in the Rue Picpus, in the Faubourg Saint Antoine, among the people of the poorer quarter of Paris, at his express and dying direction. Thus passed away from earth the honorable hero of both hemispheres and two centuries.

Said the venerable Adams, in pronouncing his eulogy, "Proclaim him one of the first men of the age, and you have not done him justice. Try him by that test to which he sought in vain to stimulate the selfish spirit of Napoleon; class him among the men whom to compare with him you must take the compass of the ages; turn back your eyes upon the records of all time; summon from the creation of the world to our own day the mighty dead of every age and clime, and where among the race of merely mortal men shall one be found who as a benefactor of his kind shall claim to take the precedence of Lafayette?"

The republic as it prospers in America was his life-long dream for unstable France. To-day it is with her a promising reality. *Esto perpetua!*

DAVID GRAHAM ADEE.

RECOLLECTIONS OF A VISIT TO THE ISLAND OF ST. HELENA.

WHILE in command of the U. S. S. "Kansas," in the year 1867, which vessel was then attached to the Brazil Squadron, I received instructions to visit some of the ports on the west coast of Africa, chiefly with the view of ascertaining if the slave-trade had any existence in that quarter, and, on the completion of this service, I was to return to Rio de Janeiro, touching at the island of St. Helena, which proved to be the most interesting part of my cruise,—in fact making amends for the discomforts experienced on the coast of Africa, so proverbial for its unhealthiness, the bad effects of which we escaped by the adoption of sanitary regulations; consequently we had no sickness on board excepting a few cases of mild fever, which promptly yielded to medical treatment.

As St. Helena will ever be associated with the imprisonment of the Emperor Napoleon, where he lingered out an existence of six years under the harsh and tyrannical system of government adopted by Sir Hudson Lowe, I will endeavor to give my impressions of what I saw there and heard from persons who were on the island at the time Napoleon was held a captive, but before doing so I conceive it to be essential to furnish a description of it, which I have compiled from several authorities. One of these states that the island was discovered in the year 1502 by the Portuguese navigator Admiral Joao Nova Galego on St. Helena's day, from which circumstance it derives its name. In 1513 it became the voluntary residence of Fernandez Lopez, a Portuguese nobleman, who, on returning in disgrace from India, settled there with a few followers, who turned their attention to cultivating its resources. In a few years Lopez was recalled home, and he, it is said, imparted information of the advantages of St. Helena to the East India Company. For some time after the departure of Lopez and his followers the island does not appear to have been regularly inhabited, but in 1640 the Dutch attempted to establish a settlement here, which they relinquished in 1651 to the East India Company. Since the termination of the company's charter the island has been in possession of the British government. When viewed from the sea it presents nothing to the eye but an assemblage of lofty and barren hills, intersected

in all directions with deep and narrow valleys, which are generally devoid of vegetation, save here and there a green spot. This was the place selected by the British government for the safekeeping of the Emperor Napoleon; it is so strong by nature, combined with a very extensive system of fortifications, which have not been improved on since, save the introduction of modern artillery, as to have made it almost an impossibility for Napoleon to have escaped. The island is divided into two unequal parts by an elevated chain or ridge extending nearly east and west. Diana's Peak, the summit of the chain towards the east, is the highest point of St. Helena, two thousand six hundred and ninety-two feet above the level of the sea. The island is ten miles long and six broad, the circumference being about twenty-seven miles, and is said to contain thirty thousand acres of pasturage and garden grounds. It is situated in latitude 15° 55′ south and longitude 5° 30′ west, which places it over a thousand miles from the coast of Africa and six hundred from the island of Ascension, where a small garrison had been stationed by the British government during the captivity of Napoleon. St. Helena is undoubtedly of volcanic origin, as volcanic productions have been found in every part of it.

The island was seen from the deck of the U. S. S. "Kansas" on the afternoon of the 8th of April, 1867, at a distance of nearly forty miles, but would at intervals be shut in by thick weather, caused by the southeast trade-winds, that blow with great regularity the whole year round.

The only safe anchorage is on the north or lee side of the island, which we reached after midnight, anchoring under Ladder Hill, a little to the westward of Jamestown.

With the usual impatience of one who had been confined for several weeks on board ship, I landed in the morning at the place where Napoleon disembarked with a few devoted followers[1] on the evening of

[1] The following persons composed the suite of the Emperor Napoleon during the first years of his captivity on the island of St. Helena,—viz., Counts Bertrand, Montholon, Las Cases, Baron Gourgaud, Dr. O'Mera, his private physician, and Piontkwski, a native of Poland, who had served as an officer in the guard of Napoleon, and had followed him to Elba. Counts Bertrand and Montholon were accompanied by their families.

Piontkwski, who was not very well known by Napoleon, remained but a short time at St. Helena, as Longwood was not sufficiently large for the accommodation of those Napoleon preferred having near him.

Count Las Cases was sent off the island in 1816, by Sir Hudson Lowe, for some infraction of the rules established by him in the transmission of private letters.

Baron Gourgaud also left St. Helena before the death of Napoleon, owing to domestic affliction, which necessitated his return to Europe.

The corps of domestics also underwent some reduction by order of Sir Hudson Lowe; Sartini, a native of Corsica, being one of the number discharged, who subsequently had charge of the tomb of Napoleon in the Hôtel des Invalides, where I

17th of October, 1815, from the British frigate "Northumberland," carrying the flag of Sir George Cockburn, who acted as governor for nearly seven months previous to the arrival out of Sir Hudson Lowe. The entrance to Jamestown is through a gate, on the left of which is the government house for the transaction of public business. The town is situated in a narrow gorge, flanked by high, barren mountains, which give it rather a picturesque appearance. Some of the buildings are quite well constructed, the material being chiefly stone, and are mostly two stories high. The population is estimated to be about four thousand. The numerous shops on the main street, through which runs a stream of water, would indicate that it has some trade, caused by the arrival and departure of vessels that frequent St. Helena for supplies such as the island affords. The entire population is said to be six thousand, and is not sufficiently productive to sustain itself, depending to some extent on England and the Cape of Good Hope for such articles as the wants of the inhabitants require.

There are two roads leading into the interior of the island, which bear evidences of skillful engineering in being cut on the sides of the mountains, running zigzag; the one on the right, as you land at Jamestown, leads in the direction of Plantation House and Longwood, and the other, on the left, is the one Napoleon took the day after he landed, on his way to inspect Longwood, four miles from Jamestown, which had been selected for his future residence, and is known to this day as the Napoleon road. He was accompanied on this occasion by Admiral Sir George Cockburn and Count Las Cases, one of his followers, and while riding along his attention was drawn to a cottage called the "Briars," situated in a beautiful valley, three-quarters of a mile from Jamestown, where he intimated he would prefer to remain, with the consent of its owner, a Mr. Balcome, while Longwood would be undergoing repairs for the accommodation of himself and suite. It is needless to say that his wishes were cheerfully complied with by Mr. Balcome, who subsequently became the purveyor of the establishment at Longwood. This arrangement, so satisfactory to Napoleon, obviated his return to Jamestown, where he knew he would be subject to the gaze of its inhabitants. After paying the usual official visits, my desire was to see Longwood and the grave of Napoleon. Therefore, I promptly accepted the offer of a carriage from Messrs. Solomon & Gideon, the chief business men of the island, who are noted for their kindness and hospitality to strangers. I had for my companions Judge Pringle of the mixed Slave Commission, who, at my invitation, took passage at Cape Town

met him in 1857. This post of honor had been assigned him by the Emperor Louis Napoleon as a reward for his fidelity and devotion to his fallen chief.

I also had the pleasure of making the acquaintance of another member of the household of Napoleon, a Mr. Archambaud, now a worthy citizen of Philadelphia, to whom I presented some pressed flowers gathered at the grave of Napoleon, and which he evidently prized.

in the "Kansas," also, Mr. Fitman, U. S. consul at St. Helena. We took the road on the right that leads to Plantation House and Longwood, and winds up the hill six hundred feet high. The stone wall on the precipice side renders it perfectly safe for carriages. We had hardly ascended half-way up when we met the governor of the island, Sir Charles Elliott, on horseback, on his way to town, who immediately stopped and introduced himself in a friendly, off-hand manner; this pleasant meeting ended with an invitation to myself and friends to dine with him the next day at Plantation House. This we accepted with much pleasure. Soon after leaving him we reached the summit, stopping a few moments at the cottage of Mr. Gideon, who happened to be absent, but whose lady extended to us a cordial welcome. We also paid a flying visit to the Bishop of St. Helena, who received us most kindly. The day on which I made this trip was warm and pleasant in the town, but in the country the climate underwent an entire change, proving gloomy and misty, with occasional showers of rain, which prevented my seeing several of those beautiful valleys which strike the eye of a traveler on his first visit to the island, and are so enjoyable after a long confinement on board ship. As we drove along we caught an occasional glimpse through the mist of the grave of Napoleon, situated in Sloan's valley, and soon afterwards we reached Huts Gate, the entrance to Longwood's grounds, where a guard had been stationed during the captivity of Napoleon. Huts Gate is flanked by two frame buildings, one of which had been occupied by Count and Countess Bertrand, but are now inhabited by a poor family who derive quite a revenue from the sale of paper-books containing pressed flowers gathered from Longwood and the grave of Napoleon, it being understood by them that all travelers will carry away some souvenir of their visit. Longwood is situated on a plain seventeen hundred feet above the level of the sea, on the northeast side of the island, the sea washing almost its base. It is greatly exposed to the southeast trade-winds, which bring rainy, misty weather, and this was our experience. (The mean temperature from five years' observation at Longwood was ascertained to be 64°.) No wonder Napoleon and his followers complained so bitterly of the climate during their residence of six long, dreary years.

There are a few stunted gum-trees in the lawn close to Longwood which partially break the force of the wind, and by the appearance of some of them they probably stood during the lifetime of Napoleon, though it is stated that on the night of his death, May 5, 1821,[2] all the trees were torn up by the roots, caused by the severe tempest that swept over the island. Longwood we easily recognized by the descriptions of it, being a one-story frame building with a two-story structure running at right angles to it, and which had been occupied by the servants of Napoleon. As we drove up to the house we were received by a French

[2] Napoleon died in the fifty-second year of his age.

sergeant in uniform, who had been left temporarily in charge of the establishment by a French colonel now absent on a visit to France. The property of Longwood was purchased in 1858 by Louis Napoleon, then emperor of France, in order to save it from utter ruin, and the title transferred to him, and he at his own expense thoroughly repaired it, preserving as much as possible its original appearance, so that visitors to this, the last home of the exile, are no longer shocked, as was the case when it had been used for a barn. Even the room in which Napoleon breathed his last had in it a threshing-machine, and the walls were defaced with names and remarks not the most complimentary to the English.

The sergeant showed everything to us of interest that was associated with Napoleon, such as the fish-pond, situated in a side-yard, and in which he manifested so much interest a short time before his death.

Close by this fish-pond, which is about as large as the basin of an ordinary fountain, stands an arbor, to which Napoleon resorted in the heat of the day, and where he occasionally received visitors. The room in which he died would be now considered a very small one; the walls we found covered with yellow paper, said to be the exact pattern that was there when he occupied it. A wooden railing incloses the space where his bed stood close to a window, and in the centre of this inclosure is a pedestal on which rests a marble bust of this great man, said to be a copy of the original plaster cast that was taken after his death. It differs but little from those I had seen in Europe, except that it had a sunken appearance about the lower part of the face, and this, it is said, was owing to not having on hand at the time of his death the proper material, —plaster of Paris, which had to be brought from one of the small islands near St. Helena,—so that two days elapsed before an impression could be taken. Notwithstanding the limited quarters assigned to Napoleon, which were the subject of so much complaint by his followers, Longwood was sufficiently large for him, having at least six or seven rooms of moderate size on the ground-floor. The attic of the main building, immediately over the chamber of Napoleon, had been used as a bedroom by one of his followers.

The additions made to Longwood by Sir George Cockburn proved, however, insufficient to accommodate all of his household.

The billiard-room, which had also been constructed by Sir George Cockburn, runs at right angles with the main building, and in this is kept on a desk a book in which visitors are requested by the sergeant to write their names, and after that he exhibited some fair photographic views of Longwood valued at four shillings, which was usually given him more as a fee for his trouble in showing the establishment. He also pointed out to us a little garden inclosed by a wooden railing and a stone wall, the latter as a protection against the trade-winds. This garden Napoleon cultivated with his own hands for recreation and ex-

ercise, but the soil being naturally poor he must have found it very unproductive, as the one outside indicated, which contained only a few stunted cabbages. The grounds around Longwood are quite small, inclosed by a wooden railing, and as it had been repaired with teak-wood, which resembles in point of durability the live-oak of the United States, it will, if not destroyed by fire, last for ages. The new house built for Napoleon by the British government would have been a more comfortable one in many respects, but his death occurred shortly after it had been finished. This house stands a short distance below the old one, and is sheltered somewhat from the trade-winds by a hill in the rear. The front of the house commands a superb view of the valley beneath. It must have been a very costly one to build, as nearly all the materials were sent out from England, and would be considered a complete one in any country, possessing most of the modern improvements, with servants' quarters in the rear running parallel with it, and Napoleon, it was said, was in the habit of inspecting the building, suggesting alterations, such as having wooden shutters, graveled walks, etc. The iron railing around the house, to which he objected, was removed by Sir Hudson Lowe.

After bidding adieu to Longwood, we drove in the direction of the valley where the remains of Napoleon rested for nineteen years, and, although it rained very hard, our desire to see this spot was not at all lessened by a good drenching. This valley is about a mile from Longwood, and is reached by a narrow pathway which branches off from the main road, where there is a finger-post on which is written, "To the tomb of Napoleon;" but one could not easily mistake this picturesque spot, as the views of it are very accurate.[3] In this favorite valley Napoleon designated his remains should lie, though in his will he requested that "they should repose upon the banks of the Seine, in the midst of the French people whom he loved so well," but here they rested until October, 1840, when they were carried to France in the French frigate "La Belle Poule," commanded by Prince de Joinville, and deposited December 15, 1840, beneath a magnificent monument in the Hôtel des Invalides, with grand and imposing ceremonies. We were shown by another French sergeant the modest little spring, gushing out from the hillside, surrounded by moss and fern. An iron railing incloses the grave, and between this and the outer one there is a space containing a number of fine trees, one recently planted by the present governor, a New Zealand pine, similar to those at the Plantation House. But of all the trees the famous one is the weeping-willow which overhangs the grave, and this, the French sergeant informed me, had been planted by Napoleon with his own hands, and from it I obtained a small branch as a souvenir of my visit.

The large stone that covers the vault is without any inscription, in

[3] The grave of Napoleon was also included in the purchase of Longwood.

consequence of Sir Hudson Lowe objecting to the title of emperor, which the followers of Napoleon desired should be inscribed upon it. But no inscription could have added to the fame of him who at one period of his eventful life had subjugated nearly the whole of Europe. Close to the grave we found roses and geraniums growing wild, which bloom the whole year round, and perfume the air with their delicious fragrance. I lingered long here, and could not help thinking of one who had performed so many heroic deeds in battle, and at last fell from his greatness to die a prisoner on an island far away from his wife and child, to whom it was known he was most tenderly attached, and, as an evidence of it, he directed in his will that his heart should be conveyed to Marie Louise, and that his son should be carefully educated, who was never to forget that he was born a French prince.

During my stay of ten days on the island, enjoying the hospitality of Messrs. Solomon & Gideon, I visited the "Briars," and found it occupied by Mr. Solomon, who pointed out to me a large looking-glass, framed in ebony, which had once hung in Longwood as part of the furniture. In connection with the temporary residence of Napoleon at the "Briars," where he found shade and water, it is related by Dr. O'Meara, in his work called "A Voice from St. Helena," that he passed his days in comparative comfort; but this was at the time when Sir George Cockburn was governor of the island, who imposed no useless restraint upon him, such as confining him to certain limits. He even withdrew a small guard that had been stationed there, when he ascertained that it was displeasing to Napoleon. It was also related that he was partial to the society of the two young and pretty daughters of Mr. Balcome, the former occupant of the "Briars," and was known to enter into their childish sports, such as playing "blind-man's buff" with them. One of these young ladies, some years after, married a Mr. Abell, and on her return to England published a book of her recollections of Napoleon. The house in town in which Napoleon passed his first and only night had been destroyed by fire some time before my arrival, leaving nothing but the bare walls standing. I dined twice at the "Plantation House," by the kind invitation of Sir Charles Elliott, vice-admiral and governor. This place is decidedly the finest on the island. The grounds are extensive, and kept in excellent order. The climate here is entirely different from that of Longwood, and this is owing to its location, on the lee side of the island, protected by a range of hills from the trade-winds.

Here grow tropical and temperate fruits of every variety, and this place should have been the residence of Napoleon; but it was thought that its proximity to the sea might have facilitated his escape from the island, hence Longwood was selected.

This narrative would not, in my judgment, be complete were I to omit alluding to Sir Hudson Lowe, the successor of Sir George Cock-

burn, and if it should be considered that I have done him injustice by relating some of his acts of tyranny, the reader can only refer to the work of Dr. O'Meara, an English naval officer, who had been selected by Napoleon as his private physician, and accompanied him in the frigate "Northumberland," but who, after serving in that capacity for nearly three years, was sent off the island by an order of the English ministry, suggested by Sir Hudson Lowe when he found that he could not make use of him as a spy upon Napoleon's movements and conversation. This arbitrary act deprived Napoleon of medical treatment for many months, as he would not accept the services of any physician recommended by Sir Hudson Lowe, preferring to wait, even at the expense of his health, until one of his own choice could be sent out from Europe. The publication of this book of Dr. O'Meara's showing up the cruel treatment of Napoleon by Sir Hudson Lowe brought upon him the displeasure of his government, and ended in his dismissal from the English naval service. This journal of O'Meara's is quoted from by Alison in his history of Europe, who acknowledges in spite of his prejudice against Napoleon that the selection of Sir Hudson Lowe as governor of St. Helena by the British ministry was an unfortunate one, he being a person of an irritable and suspicious nature, and for whom Napoleon had such an aversion that after several painful interviews he would not consent to see him, and this unhappy state of affairs continued up to the day of his death. It is natural to suppose, however, that if Sir Hudson Lowe had been a person of genial pleasant manners, and had consulted the comfort of Napoleon during his captivity, Napoleon's life would in all probability have been prolonged for a number of years. In a conversation I had with Sir Charles Elliott, who had in his younger days seen Napoleon while a prisoner on the island, I was informed that the commencement of Napoleon's troubles with Sir Hudson Lowe was occasioned by his taking exception to being addressed as General Bonaparte instead of emperor, which gave rise to a bitter correspondence, ending only with Napoleon's death.

When I asked Sir Charles what his course would have been on this point, he replied that had he been governor he would have addressed Napoleon as "your majesty," and this would have insured a good understanding between them.

Sir Hudson Lowe always fancied that there were plots on the island to carry off Napoleon, and this haunted him day and night; hence those foolish restrictions which annoyed and irritated his noble captive to such a degree that rather than submit to them he preferred keeping within doors for months and weeks at a time to the injury of his health, he having been accustomed nearly all his life to take a great deal of exercise on horseback.

When not interrupted by sentries he had a space of six miles to ride in, followed by a British officer, whose duty it was to see that he

did not pass beyond the limits assigned him; indeed, all his movements were closely watched and reported to Sir Hudson Lowe by means of signals from the tops of the mountains. Every precaution was taken to prevent his escape, and sentries posted where there was the slightest chance of a landing. The island being strongly fortified, with a garrison of two regiments, and vessels of war constantly cruising around it, Sir Hudson Lowe should have been convinced that his prisoner was perfectly safe; but so far from this it is related of him that on one occasion, because Napoleon had not been seen for thirty-six hours by any English officer, he ordered his aid in the middle of the night to ride over to Longwood, a distance of nearly five miles, and ascertain if he were there. When the aid returned, reporting to Sir Hudson Lowe that he had been unable to see Napoleon, he was immediately ordered to return to Longwood, with orders to remain there until he had seen him. The poor aid informed Count Bertrand of the nature of his instructions, who posted him behind a tree fronting the window of the chamber in which Napoleon happened to be, and after remaining there several hours he caught a glimpse of him through the window, much to the relief of the aid and delight of Sir Hudson Lowe.

I also heard another story equally as ridiculous of this governor. It appears that during his time there were a number of Chinese coolies employed as gardeners, and he noticed among them one who resembled Napoleon so much that he actually had him sent off the island, thinking that he might be used to facilitate the escape of his captive. Mr. Carrol, now in his seventy-sixth year, who was born on the island, and had at one period occupied the position of U. S. consul, informed me that Napoleon was much averse to the visits of strangers when prompted by curiosity, but when impelled by other motives an interview was rarely refused, unless prevented by indisposition. He had to a great degree the happy faculty of making a good impression upon all who called to see him, his manners being of the most charming character. Mr. Carrol, who had frequently seen Napoleon, described him as being rather short, with a well-proportioned head and finely-cut features; his eyes were gray and of the most expressive character, his hands and feet small and delicately formed, of which he seemed to be rather vain; in fact, he always paid great attention to his personal appearance.

Among other anecdotes related by Mr. Carrol of Napoleon, he mentioned that Sir George Cockburn, who was then in favor with him, brought two ladies to Longwood to introduce to him, and so certain was he of having this honor granted that he had omitted sending word to Count Bertrand, which had always been customary. On the arrival of the company they were informed by Count Bertrand that Napoleon was not well enough to see visitors, which was a great disappointment, not only to Sir George, but to the ladies. Bertrand, however, managed to

draw Sir George out of the house and engaged him in conversation, when Napoleon entered the room where the ladies were, to whom he introduced himself, and by his winning manners and charming conversation soon gained their esteem and admiration. He also had refreshments brought in, of which they partook. Napoleon then retired, and shortly afterwards Sir George joined his party, and had not been aware that they had thus been honored during his absence, until one of the ladies happened to mention that Napoleon had treated them in the most courteous manner, which annoyed Sir George no little. The object of Napoleon in resorting to this artifice was to show that, notwithstanding he was a captive, he was just as exacting in points of etiquette as when he was emperor of France.

To children he was always partial, speaking pleasantly to them, and frequently he would take a soldier by the ear in a playful manner, addressing him kindly. Mr. Carrol also related that on one occasion Napoleon with his suite galloped through the British camp on Deadwood, when the soldiers involuntarily, and without orders, fell in the ranks and saluted him. These traits of character I take pleasure in mentioning, as they give one a better insight into his private life than the reading of his achievements, which seem more like romance.

The recent visit to this historical island by the Empress Eugenie on her return from the Cape of Good Hope, whither she had gone on her pious pilgrimage that she might kneel on the spot where her brave son had fallen by the hands of a savage foe, must have awakened emotions in her mind difficult to express.

Whatever may have been the motive for the cruel policy of the British ministry in consigning the Emperor Napoleon a captive on this island, St. Helena will, in all future generations, be looked upon as a monument reared to his fame by the hand of Nature more lasting than the one under which his mortal remains lie buried in the Hôtel des Invalides.

C. H. Wells,
Commodore U.S.N.

CAVALRY.[1]

II.

DRAGOONS.

"Reports and judgments will not do't,
But 'tis *dragoons*, and horse and foot."—BROWNE.

* * * "he bears all things fairly,
* * * * * *
Fights *dragon-like*, and does achieve as soon
As draw his sword."— SHAKESPEARE.

"Dragoons the best Cavalry of the Past and the only Cavalry of the Future."

SUBSEQUENTLY to the publication of the first article on this subject, the writer has met with a valuable work which shows the changes in cavalry uniform, armor, arms, and equipments of man and horse since the introduction of fire-arms,—indeed, since the beginning of anything like authentic history on the subject. The work is a digest of the labors of several French authors.

Taken in connection with Myrick, Grose, Fosbroke, and a number of smaller works, it pretty conclusively establishes the fact that except cuirassiers, proper, and various kinds of light-horse, more or less irregulars, the cavalry of antiquity and of the transition periods, including (it is scarcely necessary to add) dragoons, proper, were what they must be, more perfectly organized, in the future, resembling in their duties the dimachoi of the Greeks,—double fighters,—drilled to explore ("*battre l'estrade or éclairer*") or "scour," to skirmish, and to hold. This shows that Necessity, the mother of Invention, was always indicating and striving to impel professional soldiers into the right course,—viz., the organization of Dragoons in the sense of Mounted Riflemen or selected Infantry, who were to depend upon their horses more for celerity of movement and for the striking of unexpected blows than for absolute shock in battle. Nothing prevented the development of this idea but

[1] The basis of this article was a meal of crude notes jotted down from time to time, when proper digestion and assimilation were prevented by a severe attack of neuralgia and a concurrence of adverse circumstances which involved a fit of literary dyspepsia.

the obstinacy or obtuseness of esotericism, which, in all times unwilling to profit by the suggestions of observant laymen or to credit improvements to them, has nevertheless been compelled to adopt and utilize the suggestions of exoteric intelligence.

"War," says Marshal Saxe, "is a science covered with darkness, in the obscurity of which it is impossible to march with certainty; routine and prejudice form their own basis,—the natural consequence of ignorance. . . ." After describing the feebleness and inefficiency of the "fore-finger" system, General Mitchell, commenting on the "Reveries" of Marshal Saxe,—which have been styled, and justly, "sparks thrown off by genius,"—says, "But then it is looked upon as a sin against all the saints to urge anything in opposition to established practice, and it is a greater sin still to introduce novelties. Be it laziness, stupidity, or vanity, all nations will allow themselves to be punished for ten years, nay, for a century together—rather than deviate from existing usages. It is only after vast loss of time that improvements can be effected; and even when their benefit is evident they are treated with coldness, because they are at variance with received practice. And yet we see so many things result from the perfect ignorance which only military stupidity could have produced!"

It is certain that if men and horses always existed together, the former must have perceived at once the advantages to be derived from the latter for the carrying on of war, and the first formation of anything resembling an army comprised cavalry as well as infantry, particularly mounted infantry or dragoons, in countries which were almost one vast champaign.

The Egyptian cavalry of antiquity was "admirable;" the Assyrian, "magnificent;" the Scythian, "terrible;" the Parthian, "dangerous;" the Greek for a short period, "efficient;" and the Roman, unworthy the military genius of the nation. The best cavalry in the service of Rome was not Roman: it was barbarian; and, strange to say, the very finest came from the marshes of the Netherlands. The horsemen who decided the fate of the world at Pharsalia were Batavians, so styled, who passed the broadest rivers by swimming as fearlessly as the Polish horsemen in the height of their renown swam across an arm of the Baltic or East Sea, the Little Belt. The Roman cavalry never amounted to anything as such. The Roman knights who constituted it—like the Spartan mounted force—made a practice of dismounting to fight on foot, and, armed as they were, they were not good for anything either on or off their horses. Moreover, they had no saddles nor stirrups, and no regular line cavalry can be depended on who are not properly (*i.e.* in accordance with common sense) accoutred and equipped. It was not until they were stiffened with light infantry in the latter campaigns against Hannibal that they could hold their own against the Carthaginians.

This "infantry-stiffening" resorted to by Gustavus and his successors, which was imitated during the "Slaveholders' Rebellion," was by no means an original idea with the great Swede. It had been often practiced by the Greeks and the Romans in their endeavors to compensate for the inferiority of their cavalry by the introduction of a new quantity. The Roman velites or voltigeurs corresponded in some particulars to the "commanded musketeers,"—a mingling of picked infantry with cavalry,—a favorite measure with the best generals of the "Thirty Years" and of immediately succeeding wars. The most notable instance which has occurred in recent times was at the great cavalry collision at Brandy Station or Beverly Ford, on the Rappahannock River, Virginia, where Pleasonton beat J. E. B. Stuart, 9th June, 1863. Some writers discover the origin of voltigeurs through a critical examination of the language of Homer. This may be, for Solomon declared that nothing is new,—that what is has been, and will again turn up as the "old-new."

In a recent cyclopædia, which has enlisted the best efforts of men learned in the languages of antiquity, in the article "Rider," the statement that "driving" preceded "riding" is affirmed. It is uncertain at what time or in what place horses were first used for riding, but there is every reason to believe that it was not until a period long after their having been employed for draught. Instead of cavalry, the Egyptians and Babylonians, and the Greeks of the Homeric age, used war-chariots, the drivers of which are in the earlier books of the Old Testament called "riders," as in Miriam's song of triumph for the overthrow of the Egyptian host (Exodus xv.). The book of Job, however, clearly intimates a "rider," in our acceptation of the word, in the description of the chase of the ostrich: "She scorneth the horse and his rider" (Job xxxix. 18). White asses were used as steeds by the nobles in the land under the judges, and instead of them we find that mules were used in the age of the kings, horses being almost exclusively reserved for chariots. The Persians appear to have been the first Oriental nation that discovered the superiority of a flexible body of cavalry over a cumbrous and unwieldy corps of chariots. Many of their early victories may fairly be ascribed to their skill in horsemanship.

The Scolothians, a Scythian nation, are said to have been the first who had the hardihood to tame that fine animal the horse, which gave rise to the fable of the centaurs among poets and mythologists. "*This*, however, *is all nonsense*," observes Count Bismark; "the employment of horses both for riding and driving is frequently alluded to in the Old Testament. When and where horses were first used is not pointed out" (Bismark's [Beamish] Cavalry, 267–8).

The invention of the bow and arrow is also attributed to these Scythians, and they were "specially famous as mounted bowmen." "Saddles, properly so called, were in all probability invented by the

Persians for the sake of giving a steady seat to their Mounted Archers, a part of their military forces to which they always paid the greatest attention." Perhaps it is for this reason—viz., the important influence exercised upon the military art and science by the Persians—that the learned Von Kausler begins his chronological tables with their first great king and captain, Cyrus, "the Sun," so styled, perhaps, because he like that luminary was also a source of light (intelligence) and of heat (protection).

If the accounts that we possess of the campaigns of Cyrus are credible, he was one of the greatest captains of the historic world, and yet his veteran organizations were completely shattered by the Scythian nomads, who encompassed them with swarms of brave and powerful irregular horsemen, first intercepting the sunlight with the clouds of their arrows and then charging home. Some investigators suppose these Scythians to have been the same as the subsequent Huns who overran almost the whole of Europe under Attila, and afterward, as kindred Tartars or Mongols, repeated their invasions, conquering Russia and extending their ravages all over Middle Europe. Marvelous to relate, such was the dread inspired by the ubiquitous movements and celerity of the cavalry of Genghis Khan that the Old World quivered in response to the orders of a semi-barbarian reigning on the borders of China, and this alarm, carried to Sweden by a Russian fugitive, lowered the price of herrings in the English market.

The celebrated tactical writer Von Bulow,—who was anything but a visionary,—who wrote seventy-five or eighty years ago, propounded the question, in earnest, whether or not it were possible for the Tartars again to overrun Europe, and a recent writer is of opinion that Russia, with all its military experience and preparations, cannot stand its ground in Asia against China if the "Flowery Kingdom" sends out lava-streams of men directed by European or American education and experience.

It is very questionable if any cavalry, ancient or modern, including particularly the Numidians, equaled that commanded by Maharbal. These were certainly as wild and ruthless children of nature as the Scythians of Queen Tomyris who had no mercy on the god-like Cyrus; and if it is true that his Numidians, instead of drinking Italy's best old wine themselves, washed their steeds in the matured liquor, the objects of such care were worthy of the costly, generous bath. This, the lavish use of the blood of the grape, "which cheereth God and man," proves that if the riders *were* barbarians they were still civilized enough to appreciate the value of the noble creatures which bore them invariably to triumph and to spoil. There is another extraordinary fact connected with these Numidians—the simplicity of their *own* and their *horse* furniture—which proves the correctness of the answer given by the Waterloo veteran Life-Guardsman: when asked what improvements he could suggest in the armament and accoutrement of his corps, he

said he would like to go into such another battle in his shirt-sleeves,—that is, unincumbered with armor or trappings. A young Moslem nobleman answered in exactly the same spirit to an officer complaining of the shortness of his sword: he observed, "It needs only one step closer to the enemy to make any short sword long enough." The world-conquering Roman sword was scarcely longer than a large bowie-knife. Hannibal's Numidians were lightly armed and equipped and rode without saddles and bridles, like the American Indians, who have only apologies for the first, and use what amounts to little or nothing as regards the second. If this is strictly true, Frederic the Great may have caught from it the idea of blindfolding the horses of the leading squadron in a charge. This "charging home" may be carried too far, however; for, although the impetuosity and vigor of the English "horse" broke the French in the majority of cases, the latter often got the best of it because they had their animals more in hand, and thus were enabled to reform with celerity and redeem the advantage. This headlong impetuosity sometimes delivered up the English horsemen as a prey to the inferior French. Still, "charging home" is a great thing, and if carried out to the bitter end often accomplishes marvels: witness the charge of Gessler's Bayreuth dragoon regiment at Hohenfriedberg—that "high mountain of peace"—solely famous for a bloody battle (1745) in which, besides the terrible slaughter made, there were taken twenty-five hundred prisoners, four guns, and sixty-seven stand of colors, besides a host of other trophies. This will receive further mention in a more appropriate place.

Although infantry is styled "the sinews of an army," and although no conquests have been permanent with any nation which did not keep up a thoroughly trustworthy infantry, nevertheless almost all the strikingly great victories of the world have been due to the good or bad conduct of cavalry on one side or the other, and all the great conquests or overrunning of empires or continents have been accomplished by mounted troops. For instance, the wild natural horse-soldiery of Northern Africa determined all the triumphs of Carthage in her favor until they transferred their services to the Romans and cast their weight into the opposite scale. The mounted archers of the desert and steppe raised Parthia up into the "Fifth Great Monarchy" of the East, and the empire of the world at Pharsalia was presented to Cæsar on the sword-points of his Batavian or Germano-barbarian horsemen.

The Hunnic-Saracenic hurricanes of horsemen, and subsequently their Tartarian or Mongolian successors, overwhelmed nearly the whole known world with their earthquake tide-waves of cavalry, and were arrested only by the iron barriers of a braver and heavier chivalry,—like the rocky ramparts of a continent opposed to an ocean,—as under Ætius at Chalons (A.D. 451), as under Charles Martel at Tours (A.D. 732), and as under Henry the Upright at Wahlstadt (1241). Frederic

the Great's victories were rendered so wonderful and gloriously complete by a cavalry which was superior to everything of the kind that had existed for more than nineteen hundred years.

It may be, in the gradually and of recent years rapidly developing revelations of antiquity, some government will be discovered better organized than that of Egypt. As yet, however, nothing can approach the organization and administration of the ancient Egyptian armies, whose strength, while it was undoubtedly based on their infantry, was dreadful to other nations in the efficiency of its cavalry. When Shishak raided Jewry, after the death of Solomon, besides his twelve thousand chariots, he let loose upon the country sixty thousand horsemen. A celebrated tactician and military writer, the Chevalier Folard, after examining the Bible, declared that Moses was an able infantry-general, and that he had conceived the same formation in columns which Folard considered his own idea. General George H. Thomas, "our greatest with the least pretense," in a long and learned conversation in regard to military matters, declared that in the matter of encampments no improvement had been made upon the dispositions of one who, great as he is considered as a law-giver, was even more so as an organizer and mover of hosts. Now, all that Moses knew (unless everything is conceded to inspiration) was derived from the Egyptians, and the biblical writers after him showed themselves perfectly acquainted with the A, B, C of tactics. Take, for instance, the most important primary instruction in the school of the soldier, the "cadenced step," so long lost throughout the armies of the world, and first restored in modern times by the Condottieri, of whom Fra Moreale or Walter de Montreal, who flourished about the middle of the fourteenth century, was the most notable example. This necessity of discipline is vividly impressed upon the earliest monuments of Egypt, and, thus to be emphasized in sculpture of the remotest past, demonstrates the importance attached to it by the earliest understood civilization upon the banks of the Nile.

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The fact is that until within twenty years very few have been aware of what the ancients knew and practiced, especially about the care of horses. The bronze bit of the Second Great Monarchy (Assyria) found at Nineveh, was a fac-simile of one extensively used at present, and horses were curried or dressed with brush and comb, and experienced even more care than is extended to them by "hippophiles" at this era of Baucher and Bergh.

If the proper definition of the term "dragoons" is "soldiers trained and intended to fight on foot as well as in the saddle," then almost all the cavalry of the world, from its initiation down to the time of Maurice of Nassau were such, and cavalry, proper, were the exception and not the rule.

In the Old Testament—whose canon was complete and closed four

centuries and a half B.C., when ordinary history begins—horsemen are scarcely ever, if ever, mentioned except in connection with bows,—*i.e.*, otherwise than as mounted archers. Undoubtedly the period of chivalry, so styled, must be thrown out, when the knights were so heavily armed that they were scarcely able to move about effectively the moment they had dismounted, and were positively helpless when thrown out of the saddle. There are stories told of the rabble of an army falling upon unhorsed cavaliers and breaking up their armor with mallets and other implements to get at the wearers, just as the casings of lobsters and other shell-fish are fractured to obtain the meat within.

General von Kausler—as stated in connection with Cyrus—does not carry back his noted "chronological table," attached to his "Elements for Guidance to the Study of Military History,"[2] farther than 550 B.C. This comparatively recent date was owing, perhaps, to the fact that the Egyptian records had not as yet revealed their wonders when his investigations were given to the public, nor yet the Assyrian (and Hittite?) inscriptions and other records in cuneiform characters. Indeed, it is only within twenty years that any translation of the latter was deemed sufficiently trustworthy to influence the previous conclusions of science.

To bear out the "dragoon theory" herein assumed to be correct, the first regular troops on the backs of animals mentioned by Von Kausler are the "archers mounted on camels" of Cyrus, who is said to have reigned 558–529 B.C. These may be said to have decided the battle of Thymbra, B.C. 548, against Crœsus. The story runs that the odor or aspect of the camels had such an effect upon the horses of Crœsus that the latter would not stand their ground, but took to flight. Then, in the consequent confusion, Cyrus sent in his war-chariots, armed with scythes, which inflicted a "horrible carnage." The same results were obtained through the same antipathies, it is said, when Solomon, the lieutenant or successor of Belisarius, A.D. 535, attacked the successors of the Numidians (Gibbon, iv. 143–44). Daily experience disproves this natural disgust of the horse, and Orientals, intimate with both animals, deride the idea. These camel archers were revived in Bonaparte's dromedary dragoons. Each animal carried two light-infantrymen, seated back to back. This corps was employed against the inimical tribes, whom to overtake and punish required even more speed and endurance than that of cavalry, and, likewise, often, all the solidity and precision of infantry, if the enemy were mounted and in force.

In the century succeeding the reign of Cyrus,—the fifth B.C.,—when the Persians invaded Greece, there was already a "general of cavalry" proper, who strictly discharged the duties of the office. At the battle

[2] Translated for the "Eclaireur," a Military Journal, vol. i., 1853–54, published by Colonel A. T. Cowman, 21st Regiment M. F. S. N. Y., and vols. ii. and iii., gratis, by the author of this article.

of Platæa, B.C. 479, Masistius showed himself a model dashing cavalry-leader. Mardonius, the commander-in-chief, was also an adept in the application of this arm.

Already, in this century, the "Greek citizens were at the pinnacle of their glory," and the Grecian cavalry had received an organization such as would be recognized as complete in modern times, since the distinction was sharply drawn between heavy (*cataphracti*) and light (MÊ-*cataphracti*). To these Alexander added a third class (*dimachoi*), intended equally for service on foot and on horseback; in other words, actual dragoons. Constant improvements followed in cavalry tactics. Epaminondas (fourth century B.C.), the Gustavus Adolphus of ancient history,—the former the greatest man among the Greeks, the noblest race of antiquity, as the latter was the finest model of Christian manhood among the best of the moderns,—raised and disciplined a corps of five thousand regular cavalry. This Theban horse was "the first imposing body of mounted troops of which there is a well-authenticated and detailed account." Just as Thebes rose and fell with Epaminondas, so did its cavalry.

Nevertheless, the Greek cavalry, which as an organized force dates from Pericles, 450 B.C., was comparatively so few in numbers as to amount to very little before the time of Philip and Alexander, 350 B.C. Under them—father and son, both great—it really became a magnificent unit of force, and was as much cavalry, proper, as the same arm under Hannibal, under Timour, under Gustavus, under Charles XII., but most especially under Frederic the Great. "Der alte Blucher" knew how to handle cavalry, as was shown by his masterly trap and surprise at Haynau, in Silesia, 25th May, 1813, where Colonel Dolfs, who fell leading the attack of his three regiments, ran off with Marshal Maison's dragoons, and in spite of the efforts of the "bravest of the brave," Ney, sabred one thousand French and captured thirteen hundred, likewise eighteen guns (Cust. 1813, §§ 9, 12, 13; Bismark [Beamish], 232).

With the decease of Alexander died the efficiency of his excellent cavalry. It has always been so. Without a superlative leader, cavalry has never justified its expense or realized its object. Count Bismark (Beamish, 47) says, "An open, flat country is the ground upon which cavalry appears in its full perfection; great *rapidity* in all manœuvres is its first and most eminent quality, and that by which it has obtained its superiority, as many fields of battle testify. BUT A LEADER IS NECESSARY IN WHOSE PERSONAL QUALITIES RESTS THE INEXHAUSTIBLE SOURCE OF ALL SUCCESSES."

This is what is meant by the expression, the Arm of THE Man,—*i.e.*, dependent for excellence on a leader. The "Arm of the Moment" is equally pertinent and comprehensive. "In battle, *minutes* are decisive; to know and profit by these *minutes* is the *talent for commanding* in a

general of cavalry." The decisive blow must be delivered like as in the vision of the prophet Isaiah (xxix. 5): "Yea, it shall be at an instant suddenly." That is the way cavalry should be used, Suwarrow fashion, "like now, on the head!"

It has not always been the fashion to consider Gustavus as great in his cavalry organization and tactics and their application on the field of battle as he was in the other Arms, but the closer the investigation the clearer is the fact that he was a consummate cavalry commander. Gustavus (says D'Aldeguier, 51, 52) perfected the organization of his army: he brought back cavalry to first principles and bettered its formation; he diminished its depth from ten to four (some say three), which gave him a larger front and allowed intervals which facilitated manœuvring, while augmenting still further the extent of front. By this comparative shallowing the depth of his formations he was simply resuscitating Hannibal's idea, who, perceiving the futility of the Grecian and also Roman disposition of a squadron, reduced that of his Carthaginians to four, over eighteen centuries before Gustavus perceived the advantage of this formation. Complete success crowned his rational employment of cavalry in battle. He launched, sword in hand, his comparatively light horse like a thunderbolt against the heavy Austrian cavalry, and the latter, although better mounted and armed, were shattered.

Gorgei, in his autobiography (I., chap. xiv. 154–5), mentions a curious instance of the wonderful effect of the audacious-aggressive. A body of Austrian cuirassiers, noble troops to look at, had attacked the outposts of the Teteny brigade while withdrawing on the 3d of January, 1849. "A division of (Hungarian) hussars, just in the nick of time, threw itself upon the cuirassiers. . . . A violent conflict ensued, in which the cuirassiers suffered considerable loss." This was a perfect resurrection of the onfall of the Finns of Gustavus upon the mail-enveloped "riders" of Pappenheim and Wallenstein. Seydlitz, one of the best judges that ever lived of the capabilities of cavalry, considers that even his crack regiment of cuirassiers, after a hard day's march, might have fallen a prey to four hundred hussars, meaning that the heavy loads borne by the horses of the former would have incapacitated them from resisting successfully the active attack of less weighted animals ridden by the lightest of all light horsemen of the period. D'Aldeguier says the difference between the German, French, and Prussian cavalry of the time of Frederic consisted in the fact that the first charged at a walk, firing while advancing; that the second charged in the greatest disorder ("*en fourrageurs, à la débandade*"); but that the third combined velocity with impetuosity, and both with *ensemble*, or, as it is expressed elsewhere, the action of the "whole together." "The greatest possible simplicity is the principle of movements." This principle was acknowledged as soon as modern tactics matured; "simplicity in the con-

struction of every military evolution and rapidity in execution." Montecuculi (Turenne's great adversary) observes, "Plus les mouvemens et les changemens sont dégagés, petits et simples, plus ils sont estimés,"—The more the movements are free (untrammeled), concise, and simple, the more they are to be esteemed." Add the discipline which connects the actual trooper into the mythical centaur—horse and man one—in unity of identity for effect, and, lo! the perfect cavalryman. The same French author then asserts that the institutions of Gustavus were rendered even more perfect by his successor in ideas, Charles XII., who divested the Swedish cavalrymen of the heavy armor they had previously worn; and, nothing any longer opposing itself to the celerity of their movements, this Arm did not restrict itself henceforward to charging infantry and batteries, but dared to assault intrenchments. Here again was an exemplification of a revolution of the wheel of progress. The felloe (of cavalry), down previous to the rise of Charles, rose again with him. For all cavalry of Charles were dragoons.

This top-high tide of cavalry, or rather of dragoons, then ebbed rapidly to attain unexampled freshet- or flood-elevation and force under Frederic the Great.

Even the misunderstood but far-seeing Wallenstein comprehended the real capacity and the true use of this Arm. Unfortunately for him, and fortunately for human progress, he had not the opportunity to develop his astute views on many things in practice. Whatever may have been his later grasp of the art and science of war after observing the changes introduced by the Swedes, his will to profit by them was terminated soon after by assassination at the command and hands of ingrates.

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After Epaminondas, Greek cavalry declined rapidly. Philip and Alexander restored it. The latter is looked upon as one of the grandest specimens of "generals of cavalry" in military history. At this time the proportion of infantry to cavalry was six to one, the same as at this day. Mounted archers (on horses) were adopted by the Greeks about this period, although their use among the Persians had been common for centuries, doubtless decades of centuries.[3] A century after Alexander, Philopœmon had to remake the Grecian cavalry. This is about the date of the advent of Hannibal. Enough has been said in regard to Hannibal's cavalry. It was super-excellent. There was nothing like it again for over eighteen hundred years, and it is doubtful if it was equaled until Frederic found two such marvels in one generation as Ziethen and Seydlitz to develop its capabilities. The former was a general in the grandest sense, as well as a consummate commander of cavalry; and therefore, as Seydlitz shone so brilliantly and particularly

[3] It has been already mentioned that the invention of real saddles is credited to the Persians to insure a firmer seat to their marksmen on horseback.

at the head of his own peculiar Arm,—a specialty, the glory of the former (the duty-man everywhere, Ziethen),—who excelled in the application of the whole three Arms combined, is entirely swallowed up in the concentrated renown which the more dazzling electric light, the dashing trooper *per se*, Seydlitz, acquired in the handling of a branch of the service which so rarely finds an expert of experts at its head.

The Roman cavalry, like the Austrian, always looked remarkably well and was considered an aristocratic service. The best blood of the republic—as of the Kaiserlich-Koniglich dominion—was to be found in its ranks, and yet it never accomplished anything worthy of its *personnel* even in 1859 and 1866.

There are no braver men on earth than the Austrian troopers, but they seem to be always badly handled. Magnificent to look on and brave as the steel they brandish, there is something in their organization, discipline, or tactics which seems, as at Leipsic, 1631, as at Marengo, as at Solferino, and on a number of other fields, never to allow them "to fight their battles out." Doubtless it is the *system*, not the men.

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An anecdote is related in "Gorgei's Autobiography" which, if correct, can only be attributed to distrust somewhere. He says (i. 248) the Austrian cavalry did not carry standards into action:

"In the Austrian army there exists the custom—I know not from what period—of the cavalry leaving its standards completely out of action, so as not to run the risk of losing them *mal à propos* in an attack. This custom certainly says less for the self-reliance of the troops than for their wise precaution. It had, however, been introduced, and our Hussar regiments had retained it in order to make *partie égale* with their adversaries."

Like a great many historic myths and historic names even in this young country, there is a vast deal of "buncombe" about the reputation of the Austrian cavalry; and "if the past be a type of the present, the practical Brandenburgers (now Prussians), who, strange to say, were led at Fehrbellin (1675) by a tailor-bred general,—the celebrated Field-Marshal Doerflinger,—will always" (this was written in 1865 and verified in 1866) "sadly besmirch and crimson the pipe-clayed tunics of their resplendent southern neighbors." "A ragged soldier and a bright musket," quoth old Tilly; and although a very popinjay may be a right gallant soldier, it is often that the rough, gaunt, but wiry horses and riders acclimated to wild work make short account of grander and more elegant adversaries.

Various writers present ludicrous pictures of the horror and astonishment which filled the minds of Von Bulow's troops after a comparative military promenade in their clean untorn uniforms, with satisfied stomachs, with sleek, well-fed horses and full caissons and wagons, when they first caught sight of their tattered, dirty, battle-stained, and

weather-beaten brethren of the army of Silesia, with their horses gaunt, ill-groomed, and rough, but "neighing," full of vigor and fire, and asked themselves, "Are we, too, to be brought to such a pass as this by the never-ending fighting and fatigues inseparable from service under old 'Marshal Forward,' Blucher?" Troops like those of Blucher, however, are the troops who can fight. Frederic, pressing on to fight the Russians, inspected Dohna's, who had just been defeated at Zullichau. He found them "wonderfully clean and pipe-clayed complete." Alluding to his own troops, he said he brought up a set of fellows rough as (graus (?) teufln, horrible-looking devils), "but they can bite. I hope" —to Dohna—"yours can." Zorndorf proved that the pipe-clayed regiments could not bite or stand being bitten like the grausteufln.

Towards the end of the first century B.C. "the art of war [of antiquity] was brought to its highest point." This is the time, it is claimed, as previously mentioned, that the best Roman cavalry were Batavians (Hollanders), not from a horse-breeding country, but from a debatable land,—one hardly either land or water. Did it ever occur to any one while reading the accounts of the feats of these Batavians swimming the widest rivers, etc., in line of battle, to question the truth of Cæsar's story and history in general?[4] No people not naturally horsemen ever have made or can make the superlative cavalry that these Batavians are represented to have been. The Gauls had admir-

[4] A German critic, Baron August von Goler, denies that Cæsar ever penetrated into the present kingdom of the Netherlands. In his "*Gallischer Krieg*" (in the Astor Library), Stuttgart, 185(?)8, 193, he says: "Cæsar never reached the mouth of the Rhine. It is unanswerably true that he was mistaken as to the trend or location of the coast-line. He thought it was much east of the true line. *He never saw the true shore lines.*" He reiterates, "Julius Cæsar never reached the mouths of the Rhine (ibid., note 3, page 193). He knew nothing of the ocean's limits hereabouts, but was all abroad on the subject (compare ibid., p. 110). What the Isaurians were to the Romans to the east (see Isauria, Smith's "Dictionary of Greek and Roman Geography," Boston, 1854–57), ancient Flanders and Zeeland (*Menapia*, including part of Holland and Brabant) were to the Romans to the northwest. Julius Cæsar stationed his legions *around* but *not in* Menapia; Augustus *encircled* but did *not occupy* it with his troops, and his successors posted their forces *around it* in a similar manner" ("Menapii," 34).

Asinius Pollio (Bayle, v. 30 (2)) accuses Cæsar of having written very negligently and recited fables which his admirers have duly augmented. For instance, it is gravely asserted "Cæsar had elephants in Britain" ("Hone's Every-Day Book," ii. 363–4). Von Kausler ("Military Atlas," Text 52–3) plainly shows Cæsar was beaten by Vercingetorix at Gergovia (B.C. 53), whereas the run of commentators dignify the defeat under far milder terms. Nothing is so untrustworthy as histories as to military inventions and improvements written by men running in a rut like the "sheep of Panurge" (Rabelais). For instance, while crediting the mobilization of artillery to this or that soldier-king or professional soldier, Bureau, an "homme de robe" (pas de l'epée), a genius who had "grow'd" like Topsy, who laid down the pen to take up the truncheon of "master of the artillery," he it was, a clerk (maitre de comptes), who was the first (1439) to make a wise and efficient use of artillery (see "Life of Jacques Cœur, the French Argonaut," and also Moreri's "Biographical Dictionary").

able cavalry, and furnished some of the finest specimens of this Arm, "Heavies," to the Carthaginians, particularly to Hannibal. The Britons likewise possessed a numerous cavalry, but then England, from the earliest accounts of the island, was a horse-breeding and employing country. A celebrated German critic denies that Cæsar ever penetrated into the present kingdom of the Netherlands. Cæsar called his Belgian cavalry "Batavians," which was equivalent to styling them "invincible," since he had found the *Menapii*—really *Meen-Aft*, signifying a confederacy or community of peoples—unconquerable, and these and the Batavians were cognate and affiliated races. It was a great compliment to the ancient Hollanders for Cæsar to borrow their name and give it to the best of his auxiliary troops.

From Julius Cæsar to Constantine the Great there was still some force in the military organizations of antiquity, of which the Turks inherited a large portion that was practical, especially many valuable ideas in respect to castrametation, particularly field-works, *i.e.*, what are now generally known as field-works. Europe presents little worthy of imitation or even investigation in connection with military matters during the Middle or Dark Ages from the reign of Constantine to the dawn of the Renaissance, say the reign of Charles VII. in France, towards the middle of the fifteenth century. It was the era of brute force. Down to the formation of the Turkish empire, the capture of Adrianople, 1360, the letter of the old Roman organizations was alive or galvanized from time to time into the appearance of life, but the spirit had fled, the *nephesh*, soul or living principle, was dead. What was going on in Asia we have at second, third, or a more remote hand. Jesus the son of Sirach, in his prologue to Ecclesiasticus, says that "the same things uttered in Hebrew and translated into another tongue have not the same force in them," and that matters the most important "have no small difference when they are spoken in their own language." This holds good of all the accounts of Eastern developments. It is said that the army of Tamerlane was admirably organized and administered; that its subdivisions were regularly uniformed; that it had engineer troops; that it had ponton-trains; in fact, that it was a perfect army in the modern acceptation of the word. It is much more likely that it was simply another form for the application of the same brute force which carried Attila to Rome and to Orleans, and which was overcome by a stouter brute force on the vast plains of Chalons, A.D. 448. It is well known that at Angora, A.D. 1402, the myriads of Tartar horse broke and routed the veteran Janizaries, Bajazet's regular Turkish infantry,—then the best in the world,—and this and similar achievements of cavalry have given them a character to which this Arm has no claim were its successes over infantry and failures against footmen placed fairly in the scales or set forth in parallel columns, circumstance against circumstance, fact opposed to fact.

If Bajazet's infantry, which perished at Angora like the Spanish Walloon organizations at Rocroy,—the former the finest of its period,—had been provided with even the imperfect fire-arms of seventy years later, much more the fire-arms of precision of this day, Tamerlane's hurricanes of horsemen—*procella equestris*—could have accomplished nothing against them.

Let us note here an important error of many writers upon cavalry. This expression, "*procella equestris,*" is not to be found in the Bible, either Hebrew, Septuagint, or Vulgate. It must be credited to Livy. Still, there are sentences or expressions throughout the Bible which come very near to Livy's actual words. For instance, Isaiah (xxi. 1), alluding to the invasion of Sennacherib, who prided himself on his cavalry, uses these words: "*As whirlwinds in the south pass through;* so it" (Sennacharib's *procella equestris?*) "cometh from the desert" (the home-land to this day of horsemen), "a terrible land."

Other prophets use grand language in regard to cavalry swarms. Jeremiah says (iv. 29), "The whole city shall flee for the noise of the horsemen and bowmen" (mounted archers);[5] Ezekiel (xv. 10), "Thy walls shall shake at the noise of the horsemen"; Habakkuk (i. 8, 9), "Their horses also are swifter than the leopards and more fierce than the evening wolves: and their horsemen shall spread themselves" (like the Russian Cossacks in 1813–14, and Prussian Uhlans in 1870–71); ". . . they shall fly as the eagle that hasteth to eat, . . . their faces shall sup up as the east wind." (Compare Ezekiel xxvi. 10, 11.) Forcible language, these passages,—terrible pictures.

Even Virgil's most famous line,

"Quadrupedante putrem sonitu quatit angula campum,"

seems like many other brilliant passages to have been suggested by the Bible, whose influence was vividly visible in Italy at this era. See "Judaism at Rome, B.C. 76–A.D. 140," New York, 1877.

Jeremiah reads (xlvii. 3),

"At the noise of the stamping of the hoofs of his strong horses."

Even in the time of Frederic, when cavalry was at its best, the Prussian victories were manifestly due to iron ramrods and the rapid sustained fire and manœuvring capability of the infantry supported by artillery.

But with this digression, the result of fruitful suggestions inseparable from this interesting subject, the attention has been drifting from the main consideration of the article, Cavalry, proper, but particularly dragoons. At Angora, several times alluded to already, Tamerlane's tactics were pretty much the same as those of the Saracens in their

[5] Here note a curious fact: Gustavus Adolphus, notwithstanding all his improvements, had three thousand bowmen in his army about 1630, and in 1814, when the Russians invaded France, there were Bashkirs among the Cossacks, who were mounted archers without fire-arms.

prime, A.D. 950. His army, like theirs, was divided into divisions, generally five,—van, centre, two wings, and a reserve,—and, like them, he depended for victory on the impetuous attack of enormous masses,—vast and irresistible,—like the earthquake waves of the Pacific. Generally among the Saracens the cavalry was one-third the number of the footmen, and as a rule posted on the wings. Von Kausler remarks, "This is about all that is known with certainty."

Towards the end of the thirteenth century, chivalry was in its prime, and cavalry was the principal Arm in all the different armies of the world. About the middle of the fourteenth century, fire-arms first came into use and "cavalry loses its prestige," and its proper application was soon and so far forgotten that it was used for "delivering *firings*," very much like infantry; this too at the very time when "the Swiss began to form hollow squares to resist cavalry." This is a notable era. It was the beginning of the study of the "art and science of war," and the first attempt at the establishment of regular troops, or rather a regular army; the organization of cavalry proper; of cannon-founding; of field artillery; of the division of infantry into regiments; and of a number of other improvements indispensable to the constitution of a strictly ordered army. Ameliorations and improvements were now advancing with rapid strides, but, strange to say, it was not before 1558 that any mention is found of modern dragoons. The majority of military historians attribute their origin to the Marshal de Brissac, who commanded a French army, under Henry II., in Piedmont, although their institution is sometimes credited to Maurice of Nassau, to Count Mansfeld, to Henry IV. of France, or to the Prince of Parma. It is military tradition that assigns their conception to De Brissac, and, like almost all traditions it embodies, together with a grain of truth, a vast amount of error.

The term "dragoons" or its equivalent, used in one modern language or another to designate troops destined to serve on foot as well as on horseback, dates back to the first organization of cavalry, whether it is to the ninth century B.C. among the Assyrians, or the twenty-eighth century B.C. among the Chinese, or to thousands of years previous,—to the remote prehistoric times when the Aryans first made their religious eruptions and conquests.

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The history of mounted troops, which embraces cavalry, proper, only as a constituent, has been subjected to the inevitable law of human organization and progress. It moved on in circles, advancing like a wheel, until for the nonce it has returned to its original formation. Mounted soldiers commenced their career as Mounted Archers, and they end as Mounted Riflemen,—*dimachoi*, fighters on foot as well as on horseback. So they were at the commencement in remote antiquity, and so they are at the end, in the present. "Double fighters they were

under the Romans, who borrowed their tactics, like their gods, from the Greeks, from the Etruscans, from the Samnites and the Gauls. They were still so in feudal times,—exceptionally, however, as at Næfels and at the assault of Brescia. They became *legitimately* dragoons when Marshal de Brissac organized them as an Arm apart and styled them dragoons. So they were, and so they are. They distinguished themselves and won greater renown during the grim, protracted tragedy of the Thirty Years' War and its equally bloody but less hideous afterpiece, the reign of Charles X., Gustavus, as at the storm of Fredericks Odde, and of other strong places. Even in the same grand fashion under the Great Elector and down to the acme of Frederic the Great, and even such they were under the trustworthy Thomas-like Buford; the American Seydlitz, Pleasonton; and Lieutenant-General Sheridan, and even so they must be until the art and science of war enters into a new phase, whose development, through the application of more fatal agencies, no human foresight can predict.

Quintus Curtius mentions (Montaigne, I. 429) a peculiar kind of *dimachoi* among the Dahœ, who were encountered by Alexander the Great. Their discipline was to march two and two together, both mounted, but in battle they fought by turns, one on foot and one on horseback, the latter leading (apparently) the horse of the former.

The earliest representations found of Assyrian cavalry (Rawlinson, II., p. 49) belong to the date 883 B.C. They are "mounted archers," —equivalent to mounted riflemen; afterwards mounted lancers or pikemen were portrayed. At first (424) the archers had foot-soldiers to lead or steady their horses in battle or take charge of them.

Sargon—one of the greatest of the Assyrian kings—(720–22 B.C.) had both mounted archers and mounted lancers or pikemen, two different kinds of cavalry, which served together, just as in the seventeenth century A.D. the dragoons were divided into mounted musketeers and mounted pikemen.[6]

[6] Captain Cruso, in his "Military Instructions for the Cavalry," published A.D. 1632, says "there are two sorts of dragoons, the (mounted) pikemen and the (mounted) musketeers. The pikeman is to have a thong of leather about the middle of his pike for the more convenient carrying it. (This is just the lance of the Prussian Uhlans of to-day.) The musketeer is to have a strap or belt fastened to the stock of his musket, almost from one end to the other, by which (being on horseback) he hangeth it at his back, his burning match and the bridle in his left hand." This is the very Chasseur d'Afrique and dragoon proper of this very epoch.

"The piece (peculiar musket assigned to these troops) derived its name from the species of soldiers by whom it was carried, who to this day are in France called and spelled 'dragons' from the celerity of their movements as compared with those of heavy cavalry or of infantry."

A HISTORICAL SKETCH OF THE CONFEDERATE NAVY.

THE navy of the Confederacy had but a brief existence and was a small affair compared with the great navies of the world, yet its career was not without stirring events which the Muse of History may deign to record in some future day. The purpose, however, of this article is simply to notice briefly and cursorily the general character of that service, some of the difficulties and embarrassments attending its creation, and a few of its more prominent operations, so far as they may serve to illustrate the action and value of the new class of vessels that were for the first time ushered into naval warfare.

The Southern navy was modeled precisely after that of the United States. The same articles of war and internal rules were adopted, and the same discipline, usages, and general routine prevailed. With all these accessories, the older officers, holding their accustomed rank and surrounded very much by their former familiar associates, might have had need at times to cast a glance at the flag overhead or at the gray they had donned in place of the blue to realize fully that they belonged to a new service, foreign and hostile to the one in which they had passed the better part of their lives.

This organization was working smoothly and efficiently when a sweeping change was made by an act of Congress passed in May, 1863, creating a new service styled the "provisional navy." The officers appointed to it were all taken from the older service, now contradistinguished as the "regular navy." The juniors were transferred *in toto;* the seniors were selected by the Secretary of the Navy: all maintained unimpaired their status in the old navy.

The vessels, with all their *matériel* and their entire crews, were next summarily transferred *en masse* to the new creation, and the regular navy, thus stripped of all its properties, was reduced to a small body of veterans still in the vigor of life, yet cut off from all participation in service afloat, and consigned to the comparative inaction of "shore duties," which, nevertheless, were shared in common with the provisionals.

This duplicate organization of a general service, which, despite its nominal partition, remained essentially one and the same, was attended

with confusion, embarrassments, and even more serious objections that led, after a year's trial, the chief of the bureau of detail to recommend that the transfer to the new service should be made to embrace all the officers indiscriminately; but high officials are seldom inclined to brook any interference with pet measures, and the suggestion found no favor.

About the same time another act was passed to establish what was called the "volunteer navy." The effect of this measure would have been to systematize privateering, and, by combining its forces under the guise of a new name into a national marine, to raise it to a higher level than could be attained by single and independent vessels sailing under the authority of letters of marque and reprisal. There is reason to believe that Congress was in some degree prompted to this course by the agreement which had been concluded between the maritime powers of Europe, in 1855, to place privateering *hors de loi*, for, though this agreement was only binding upon the parties assenting to it, its moral effect as a public expression of European sentiment tended to put that method of aggression under ban and at discredit wherever practiced. The more immediate object, however, was to induce capitalists to invest in enterprises that promised swift and profitable returns, with the advantage to the government of despoiling the commerce of the enemy without cost to the treasury.

The law authorized the President to accept the services of armed vessels, furnished and equipped at the expense of the owners, to appoint officers, confer assimilated rank, define the rights and duties of those engaged in the ventures, and establish rules for the general government of the whole. The sentiment of the naval officers proper was not favorable to the scheme. Though not themselves insensible to the charms of prize money, they did not fancy being classed under the same generic head with mere adventurers whose incentive was the greed for plunder; but the law proved inoperative. Its only fruit was the appearance at street corners of a few newly appointed volunteers tricked out in a uniform that was never destined to be wet with salt water. It is believed no vessel was ever equipped for the service.

There was yet another marine force, which, as it does not fall strictly within the purview of this paper, is only noticed to dissociate it from the navy with which the historians of the day confound it. It was styled the "river defense," or more popularly "Montgomery's fleet," and consisted of a number of Mississippi steamboats, commanded and manned exclusively by river men, and placed under the control of the War Department. These boats, with their engines protected by a barricade of cotton and their bows riveted with a plating of iron, were designed for the special purpose of running down and sinking the ironclads of the enemy. Part of the fleet was eventually destroyed by their own commanders after co-operating with the navy in the unsuccessful attempt to prevent the Federal fleet from passing Forts Jackson

and St. Philip, in April, 1862, and the rest for the most part were captured or sunk during a hotly contested engagement with a superior force of ironclads off Memphis, in June of the same year.

It is no disparagement to the Confederate navy to say that it played comparatively a subordinate *rôle* in the war. The reason for this is obvious. At the outbreak of hostilities the South had no navy, in the proper sense of the term, nor did she possess at any time during the struggle a sufficient number of efficient vessels to cope with the powerful squadrons mustered along the entire coast. She had a body of valuable recruits of every grade in the naval officers who had resigned from the United States service, and a limited number of seamen and stokers who had been thrown out of employment by the stoppage of trade, but was destitute of ships, and before she had time to construct them found herself in the thick of the conflict. In this strait the government was driven to the usual expedient in such cases,—a wretched makeshift at best,—that of attempting to turn merchant craft into war ships. But no ingenuity of the shipwright could achieve the transformation with such material as the dock-yards of the South afforded. Vessels like British mail steamers, adapted in their original structure to war contingencies, or the stoutly timbered clipper ships of New York might be proper objects for such conversion; but the South, with the exception of a few sea-going vessels picked up here and there, had to rely mainly on steamboats and steam-tugs, river barges, canal- and ferry-boats.

The utter inadequacy of our trumpery fleets when the formidable squadrons of the enemy began their operations on the Southern coast might well, but for the gravity of the subject, provoke a smile. When Dupont appeared with his large and well-appointed squadron off Port Royal in November, 1861, he found nothing to oppose him on the water but seven small merchant craft improvised into war ships, and commonly known under the derisive name of "mosquito fleet." They were under the command of Commodore Tatnall, who could do no more than hover on the outskirts of the enemy and attempt ineffectually to interrupt the sounding parties as they were feeling their way over the bar. Later, during the following February, Commodore Lynch found himself in a similar position. He was stationed on the sounds of North Carolina with orders "to hold those waters to the last extremity." To make good those brave words his pennant was floating over the same number of vessels of insignificant size that but a few weeks since had been river traders or canal-boats. When the Federals made their combined attack on Roanoke Island, on the 7th, he was confronted by thirty-three vessels of various descriptions, comprising seventeen steam gunboats armed with guns of the heaviest calibre, among which were 80 and 100 pounders. In the first action, conducted at long range, he lost two of his vessels,—one sunk and the other disabled. Two days afterwards the battle was renewed off Elizabeth City, and the small flotilla

was well-nigh annihilated, one boat only escaping, which made its way through Dismal Swamp, the rest being captured by the enemy or blown up by their own commanders. On the Mississippi similar disasters overtook the same wretched class of vessels about the same time. Here, in February, 1862, Commodore Hollins was co-operating with the land forces with a force of five converted gunboats carrying in all thirty-two guns,—7½-inch rifles and 8-inch smooth-bores. These "shells," as they were facetiously called, answered pretty well for intercepting military transports or occasional brushes with the hostile batteries; but as yet they were separated by the formidable batteries on Island No. 10, at the bend of the river near New Madrid, from Foote's ironclads and mortar flotilla, the first alone mounting seventy-five guns in the aggregate, including 10-inch Columbiads, 9-inch smooth-bores, and 100-pound rifles.

Two telegrams passing between Hollins and the secretary disclose the changed condition of affairs in April, and display, be it said *en passant*, a sharp contrast between the practical judgment of the veteran on the spot and the fatuous confidence of the Minister of State seated in his official chair at Richmond. On the 9th, Hollins briefly and bluntly announces: "The boats of the enemy are heavy iron gunboats, each one of which is heavier than all mine; they have passed Island No. 10. I can see nothing I can do against them in a fight; my vessels might render good service at the mouth of the river."

There is a touch of epigrammatic pungency in the secretary's answer on the 11th: "Your proposition to carry the fleet to the mouth of the river is totally inadmissible. Every effort that nautical skill, invention, and courage can put forth must be made to oppose the enemy's descent at all hazards." Fortunately, better counsels prevailed than those which would have compelled the hopeless encounter intimated by the telegram. The vessels were shortly afterwards dismantled of their guns, to be placed in safer and more serviceable positions at Fort Pillow, and it was no serious loss to the Confederacy when their commanders were forced to destroy them, the disarmed and helpless craft, at the mouth of the Yazoo River, on the approach from below of Farragut's fleet, just flushed by the recent capture of New Orleans.

Early measures were taken for forming a navy. A secret agent employed at New York was directed in March, 1861, to purchase vessels suitable for conversion into men-of-war. Soon afterwards an officer of the line, accompanied by a competent engineer, was sent for the same purpose to New York, Philadelphia, and Baltimore, and yet another envoy was dispatched to buy a certain steamer in Canada. All these efforts proved fruitless: the Canadian steamer, for some reason, could not be obtained, and the United States had forestalled the South by purchasing or chartering whatever was available in its own waters. Naval officers were also hurried to England and France, provided with ample

funds, to purchase ironclads, or, in default of this, to have them built, and to procure arms, ordnance stores, and supplies of all kinds. The hope of acquiring ironclads in this way must have been prompted by the prevailing delusion of the moment that the great staple of the South would control the policy of those nations by forcing them into open hostilities in her behalf, or at least by inducing them to connive at the equipment of armaments in their ports. These hopes, as we all know, were not realized. The officers, being thus baffled in their first purpose, were instructed to have wooden vessels built in England for cruising on the high seas.

To accomplish this required secrecy, tact, and finesse of no common order. The English law known as the "Enlistment Act," passed under one of the Georges, prohibits, "under a penalty of fine and imprisonment, with forfeiture of property," the equipment of any vessel to be employed against the subjects or citizens of a State at the time in amity with England. To evade this act in the face of police authorities kept keenly on the alert by spies and detectives employed by the United States seemed almost a hopeless attempt; yet, in spite of every obstacle, the "Alabama," the "Georgia," the "Florida," and the "Shenandoah," which severally inflicted so much damage on the commerce of the United States, forcing almost the entire trade into foreign bottoms, were all built in British waters, from which, as soon as completed, they sailed openly under the English flag, bound to the appointed rendezvous of some lonely island, where they received their armament, hoisted the Confederate flag, and launched forth on their adventurous career.

The views of the Secretary of the Navy in regard to the character and extent of the naval preparations that were required to put the South on a good naval footing may be gathered from a communication addressed by him to the Executive under the date of March 2, 1862, for the information of Congress. In this document he states that there was or might be necessary during the current year "50 light draft and powerful steam propellers plated with 5-inch bar iron and equipped for service in our own waters, 4 iron- or steel-clad 10-gun frigates of about 2000 tons each, and 10 clipper propellers with superior marine engines, both classes of vessels designed for deep-sea cruising." He desires provision made for "3000 tons of boiler and plate iron, 1000 tons of rod, bolt, and bar iron, 3000 pieces of heavy ordnance, ranging in calibre from 6 to 11 inches and in weight from 6000 to 14,000 pounds, 1000 tons of musket powder for filling projectiles and pyrotechny, 4000 naval revolvers and 4000 cutlasses with equipments and ammunition." To utilize this vast amount of material he requires "3000 seamen, 4000 ordinary seamen and landsmen, and 2000 mechanics."

Looking at the poverty of our internal resources and almost entire dependence for means and appliances for naval purposes on foreign sup-

plies at the time this communication was penned, the project it unfolds would rather seem the secretary's ideal of what the foundation of the Southern navy should be than a well-studied plan proper for legislative consideration. But that official was looked to by Congress for the initiation of its naval measures, and it was perhaps his wisest policy to present affairs under such an aspect as would inspire confidence and promote liberal appropriations. The suggestion of ironclads for sea cruisers at the time seemed premature. The question of rendering that class of vessels capable of encountering the perils of the sea had not yet been solved by satisfactory tests. As the most advanced ship in that line of improvement, the representative vessel was the French frigate "La Gloire." She was the final product of the best French engineering science and skill, which had been prosecuting its investigations through a succession of costly experimental structures, and it was claimed that she was as invulnerable to the storms of the ocean as to the shot of the enemy. The English, however,—better authorities on nautical subjects than their neighbors across the Channel,—denied the sea-going qualities of their crack ship.

But, accepting the secretary's views as real and earnest, let us examine as briefly as may be some of the difficulties he had to encounter in the attempt to carry them out, and what finally was the outcome of his labors, which continued up to the last year of the war.

It will be readily seen that it was no easy task to create a navy in a country at once invested by sea and invaded by land, depending largely on foreign supplies for many of the most important materials, yet snatching them as it were from the chances of blockade-runners, and constantly compelled by the advance of the enemy to abandon or destroy vessels still on the stocks or retreat with others more advanced to safer points for completion. Thus the progress of the work was frequently checked and delayed, and much that had been accomplished at great cost rendered abortive. Gunboats in process of building were lost in this way by the capture of Nashville; two were destroyed on the ways when Norfolk was evacuated; some ten or fifteen in various stages of construction on the shores of the York and Pamunky Rivers were sacrificed as the Confederates retired from the Peninsula; when Memphis was threatened one ironclad unfinished was hurried off to the upper waters of the Yazoo, and the torch applied to her consort still unlaunched; and the greatest loss of all was that of the "Mississippi," a powerful ironclad, destroyed when nearly completed, off New Orleans, to prevent her capture by the Federal fleet near at hand.

These were only some of the disasters arising from the cause stated. Had all of them been reckoned at the time, the sum-total might have created a fear that the work of demolition was fast overtaking that of construction.

Besides such reverses, the inadequacy of our resources beset the task

of construction at the outset with endless hinderances. The South had two dock-yards only. That at Pensacola was too remote and isolated for the occasion. The Norfolk yard was a priceless acquisition, with its dry-dock, foundry, machine-shops, its stores of material and supplies and large amount of ordnance, but the facilities it afforded could only be utilized on the spot, while the necessities of the case required that the vessels should be built in every quarter.

The Tredegar Iron-Works, at Richmond, were the only ones in the whole Confederacy capable of casting guns of heavy calibre, until the government erected its own establishments at Charlotte and Selma.

In the entire Confederacy there was not a reliable establishment, except in Tennessee, where a first-class marine engine could be constructed. Three rolling-mills only existed in the whole country, two of which, in Tennessee, were unavailable owing to the disturbed condition of the districts in which they were located, and the third, at Atlanta, Georgia, had to undergo extensive alterations, involving serious delay, before it could undertake the heavy work of the navy. The private machine-shops and foundries resorted to by the government in the absence of public establishments of the kind were everywhere more or less crippled by the loss of operatives, who had enlisted in the land service. The navy was especially pushed for skilled workmen to build its ships, and seamen to man them when built. Both of these classes had been largely absorbed by the army, which was unwilling to relinquish them. Laws passed for the recovery of them for naval uses became well-nigh inoperative from the complicate and dilatory processes of red tape and routine that hampered every effort to attain the object. Not more than one-tenth of those for whom application was made could be obtained, and these were mostly detailed for limited periods instead of being permanently transferred.

At the outset the navy was in pressing need of everything,—hemp, coal, iron, powder, ordnance, ordnance stores, medical supplies, provisions, clothing; in short, almost every article of prime necessity. Even the wood of which the vessels were built was generally standing green and flourishing in the forest when the contract which was to utilize it was signed.

To supply most of these wants the main reliance of the South, as already stated, was upon blockade-runners. All the Southern ports were busily engaged in these enterprises, much of their capital and energy, shut out from the usual fields of activity, being now concentrated in this one eager pursuit. Wilmington, North Carolina, took the lead, trading chiefly with Europe, but Charleston, Mobile, Savannah, and New Orleans had their full share in the new game of chance. Nor were other places less noted idle. Along the extensive Southern estuaries might be found here and there at some obscure inlet or sheltered cove an improvised settlement diligently prosecuting the same traffic,

the vessel screened by a convenient headland tufted with trees, and the neighboring beach strewn with cotton in process of shipment, or perhaps piled with a freight just landed and worth now a hundredfold its cost, and all these busy doings going on with the watchers outside not a whit the wiser.

The Navy Department was soon itself compelled to become an active and direct participant in these ventures. When, from the exhaustion of its funds abroad and the depreciation of its currency, it was found impracticable to purchase exchange in the ordinary way, shipments of cotton were made to Europe on naval account to provide means for obtaining home freights. The appropriations applied in this way incurred the double risk of the homeward and outward voyages, and the ventures were not always fortunate.

In addition to all these drawbacks to the work of construction, one of no little magnitude had to be encountered in the transportation of heavy naval material, such as ordnance, propeller shafts, and machinery, from the point of manufacture to the building depôts, over dilapidated railways already overburdened by the conveyance of troops with provisions and munitions of war and by the general—or it might be called the universal—travel, for the whole population seemed to be in motion.

As time advanced some of these evils were remedied, some wants keenly felt at first abundantly supplied, and new means and appliances brought into active play. Naval ordnance works and laboratories were established at Richmond, Charlotte, Atlanta, and Selma, which facilitated the work and largely increased the war products. A special bureau was appointed to foster the coal and nitre interests, with satisfactory results. Powder-works at Columbus, Georgia, were made to yield all the powder the navy required. Rolling-mills at Richmond turned out iron plating whenever the raw material could be obtained, and at rope-walks set up at the same place the cotton fibre was successfully substituted for hemp, making a substantial cordage. But no human agency could find a substitute for iron, the great, the pressing want of the Confederacy during the whole struggle. Scarce at the beginning, towards the close it was not to be had at any price. In the early part of 1861 it was quoted at twenty-five dollars per ton, in 1862 it had risen to two hundred dollars, and in January, 1865, the price was thirteen hundred dollars. The home product, never adequate to meet the ordinary local wants, much less the necessities of the government, had by this time been narrowed down to its minimum through the occupation of the mining areas by the enemy, and the supply from abroad had dwindled to driblets.

The work of constructing a navy, once commenced, was prosecuted with as much vigor as limited resources and trammeled facilities allowed. It began to take shape and system in July, 1861, though

before that time the keels of some fifteen gunboats had been laid at the York River and Pamunky, and a few others at scattered points.

Our active naval force at that period could be easily reckoned. The "Sumter," of 530 tons and 10 guns, had run the blockade and was cruising in open sea. The "McRea," of 180 tons and 7 guns, with the "Jackson," converted from a river tug-boat, were in commission on the lower Mississippi. Two small steamers had been purchased from North Carolina for the defense of her sounds. Three side-wheel steamers, the "Patrick Henry," "Jamestown," and "Yorktown," had been brought from Virginia. The first of these was our most powerful vessel. She was of 1300 tons burden, armed with six 8-inch broadside guns and two 10-inch pieces on pivot, and had the most vulnerable parts of her engine shielded with iron. These vessels, with the "Lady Davis," the "Simpson," the "Resolute," and perhaps a few other light vessels not worthy to figure in naval annals, constituted the active naval force of the South at the period stated. The "Merrimac," afterwards the "Virginia," was on the stocks undergoing her conversion into an iron-clad. The sloops "Germantown" and "Plymouth," sunk before the Gosport yard came into the possession of the South, had been raised and restored, but were never put in commission.

The *personnel* of the navy consisted of nine captains, twenty-six commanders, sixty-four lieutenants, four masters, seventy-five midshipmen (full and acting), nineteen surgeons with ten assistants, seven paymasters, three chief engineers and ten assistants of all classes, four boatswains, three gunners, four carpenters, three sailmakers, and five hundred enlisted men. All the officers of the superior grades and the greater part of those of the lower had resigned from the Federal navy.

In the summer and autumn of 1861 contracts were made for eleven steam gunboats in all at the several points of New Orleans, Jacksonville, Richmond, Norfolk, Charleston, Chattahoochee River, and Pensacola Bay. In August two armed vessels were commenced under contract at Memphis, and in October the keels of two additional ones were laid at New Orleans.

Reserving for a somewhat more extended notice the "Virginia," which came first in the order of construction, let us here trace in a few words the history of these ironclads up to their final fate. One of the two last mentioned, the "Louisiana," Captain Mitchell, not yet properly sheathed, altogether in an unfinished state, and totally unprepared for action, was forced by the emergency to take part in the defense of the approaches to New Orleans when that city was captured. At the earnest solicitation of General Duncan, commanding Forts Jackson and St. Philip, she was hurried down to the approaching scene of conflict between the forts, where she arrived only three days before the hostile squadron made its memorable advance up the river on the 24th of April, 1862. She had left the levee, under tow of another vessel, with

gangs of mechanics still working at her engine and her raw crew short in complement and eked out by an artillery company, who volunteered for the occasion, busy in mounting a battery at which they had never been exercised. Up to the hour of the fight she had not sufficient motive power to stem the current of the river, and even to shift her berth from point to point required extraneous assistance. During the desperate contest that took place she was secured to the shore under Fort St. Philip in a position that precluded the use of half her guns. She was so powerful a vessel that had she been thoroughly completed and prepared for battle some interesting incidents would have been added to that night's encounter.

The "Louisiana" was two hundred and sixty-four feet long, with a beam of sixty-four feet. Her hull, which was nearly submerged, was surmounted by a casemate protected by a covering of double T-rails as a substitute for iron plates that could not be obtained, and inclined at both sides and ends at an angle of 45°. A metallic deck formed the top of the casemate, and was the station of the small-arm men when at quarters. It was open overhead, but guarded against grape and canister by heavy bulwarks plated with iron. The battery consisted of sixteen guns, made up of two 7-inch rifles, three 9-inch shell pieces, four 8-inch and seven 6-inch smooth-bores. The propelling power was two central wheels inclosed in the body of the hull and a propeller on each quarter, which last assisted in steering. The armor passed through a severe test during the action, receiving a broadside at close quarters from the 8-inch rifled guns of the "Hartford." The shells buried themselves to about half their diameter, then fell crumbling into the river.

The surrender of the forts to the mortar flotilla three days after the action with the fleet completely isolated the ironclad. Hemmed in above and below by overpowering forces, without means of replenishing her supplies, and scarcely capable of stemming the current, notwithstanding the completion of her engines since the engagement, her capture even by simple blockade was a mere question of a few days. In this extremity a council of war was held, which decided upon her destruction. She was accordingly set on fire, and her officers and crew, who had taken refuge on board of tenders, where they were soon made prisoners, witnessed from the decks of the enemy the final catastrophe when her magazine exploded and her fragments were given to the waters.

The new ironclad built at New Orleans was pronounced "wonderful" by a veteran commodore who had served in almost as many ships as he had years. And she was wonderful for her novel structure, her massive weight and strength, and her abundant promise of speed and power. The work upon her had been watched and urged with unusual solicitude by the department from the moment the first plank was laid, and the most glowing hopes were entertained of successes that were to

follow her completion. It was believed—and the belief was not thought extravagant at the time—that when armed and equipped she would almost unaided be capable of assuring naval supremacy in the Mississippi waters, and even raising the blockade of the Gulf ports.

The structure of this vessel was peculiar and entirely new. Some years ago a Scotchman who had never been to sea wrote an original treatise on naval tactics which became the text-book of the royal navy, and in the instance of the "Mississippi" a planter in the interior of Georgia, Mr. Nelso Tift, who knew nothing of naval architecture, incited by the exigencies of the moment, conceived a new method for building naval ships which his brother, Mr. Asa F. Tift, a merchant of Key West, assisted him in developing. His device was designed to obviate the difficulties arising from the great scarcity of shipbuilders and the equal scarcity of the crooked timber which they employed. The hull of an ordinary vessel is made of a skeleton of futtocks, curved ribs, and crooked cross-knees, to which the planking, artificially bent to follow the lines of the model, is bolted outside and inside. The plan of the Tifts dispensed altogether with this complicate framework, and substituted for the sides of the vessel a solid wall of pine planks built with the requisite thickness upon a flat bottom, and having only straight lines and flat surfaces except at the junction of the sides with the ends. This plan made available for every purpose of the structure, from stem to stern, the tall straight timber of the Southern forests, and the simplicity of it placed the work within the capacity of ordinary house carpenters and joiners.

The Tift brothers were earnest and enthusiastic men, modest in their pretensions, yet confident in their invention. They carried their plan to Richmond, encouraged on the way by the naval officers with whom they communicated, and submitted it to the Secretary of the Navy. That official, upon its being approved by a board of experts, appointed the inventors agents of the Navy Department to carry the plan into execution by the construction of the "Mississippi" at New Orleans. That city, as the great commercial metropolis at the South, and as the gateway, as it were, of the Mississippi, was one of the most important stragetic points indicated in the movements of the enemy, and as yet it was almost naked of naval defenses.

It were tedious to recount all the obstacles these men, who voluntarily served without compensation, had to conquer to achieve the work they had undertaken. A building depôt had in the first instance to be created, which involved the sinking of piles in the alluvial banks of the river for the bed of the ship, and the erection of sheds, saw-mills, blacksmith-shops, and other adjuncts usually found ready and at hand. The bolt iron required was collected piecemeal from every quarter,—New Orleans, Macon, Mobile, Chattanooga, and elsewhere. The building timber was still in leaf, and had to be transported, when felled and

sawed, from various points in an area a hundred miles around. The Confederacy was scoured for iron-men who were willing or able to roll the plates for the casemate, until a contract was made at last with an establishment at Atlanta, which had to change its rollers for the purpose, but the scarcity of iron had nearly baulked this arrangement. The manufacture of the engines was perforce committed to establishments already overtaxed by private work and army contracts. Next to the machinery, the most important object was the shafting for the propellers. It was essential for the security of the vessel that this should be of wrought iron. It is a striking evidence of the nakedness of the land in regard to naval necessities that in the whole Confederacy there was not a foundry competent to make the shafting.

But "perseverentia vincit omnia," and the Tift brothers were not to be baffled. When at last they seemed to be driven to the sorry expedient of substituting cast- for wrought-iron shafts, they were fortunate enough to induce a party at New Orleans who was putting up an air furnace and forging a large steam hammer for the purpose of making Armstrong guns for the government to adapt these appliances also to making the shafting. The two side or quarter shafts were thus made at New Orleans. The central one was manufactured at Richmond, from a wrought-iron shaft recovered from a burnt ship.

Superadded to all these difficulties were strikes of laborers for higher wages, delays in the delivery of timber from contractors, financial troubles from want of proper arrangements at Richmond, and, crowning all, a certain distrust of the building agents themselves in the shallow judgments of bigots, who are to be found in all sections, and who in this instance could not pardon the accident of Northern birth to the men in charge of the construction, although they had lived in the South from boyhood.

But all these obstacles and a thousand others gave way before the untiring energy of the brothers. The first plank of the new vessel was laid on the 14th of October, and, with little exception, a force varying from five to six hundred men, stimulated by liberal wages and jealously watched by the Committee of Safety of the city, were kept working on her from that day forward.

Anxiety to avoid interruption in the work induced the Tifts, with the concurrence of the naval authorities on the spot, to postpone launching the ship to the last moment. This solicitude proved fatal in the end.

The enemy's preparations for the descent on New Orleans began at Ship Island in the latter part of February. In March the fleet had mustered at the mouth of the river, with many of the heaviest ships over the bar. The ability of war-ships to run successfully past shore batteries had been too frequently exemplified to admit of question.

Such was the opinion of military and naval men at New Orleans at the time. The inadequacy of our naval force to cope with the enemy was also apparent. The first and most effective obstructions stretched across the river had been swept away by the spring freshets, and chasms had been broken by drift wood in those that had been substituted. All these admonitory considerations, which it might have been supposed would have quickened the action of the Confederates into immediate efforts to save a vessel so formidable and so invaluable as the "Mississippi" by taking her in time to some secure retreat, failed to produce any serious impression. Yazoo River offered a temporary refuge at least, and Vicksburg was still in our possession with foundries and machine-shops available for continuing the work. But one dominant idea seems to have filled the mind of the Tifts, who, by special orders, had exclusive charge of the vessel until delivered over for service,—that of pushing forward the work; and this all-engrossing purpose closed their eyes to the palpable danger in which she stood from the menacing attitude of the enemy. In short, though men of extraordinary ingenuity and energy, they were no judges of the military necessities of the occasion.

Though sufficiently advanced for launching long before, it was not until the bombardment of the forts by the mortar fleet had begun that she was put afloat. The first attempt to accomplish this was made on the 17th of April, and proved abortive. Three powerful steamboats attached to her broke their connecting hawsers in the fruitless effort to pull her off the ways. At last it was discovered that she had been bolted to her bed by some treacherous hand. This impediment being removed, she glided into the river on the following day almost of her own volition. It would not yet have been too late to save her. Between the 18th, when she was launched, and the 25th, when the enemy reached the city, ample time and means were at hand to send her up the river, but the golden opportunity was not improved. She was still allowed to lie at the wharf with the work upon her going on, perhaps with more intense earnestness and pressing dispatch, but as serenely as if Farragut's fleet were a thousand miles away instead of storming at the outer gates of the city.

At last, at early daylight on the 24th, the startling intelligence came that the great body of the fleet had passed the forts and was swiftly steaming up the river. The news fell like a clap of thunder and produced general consternation, followed by a relaxation of all police restraints, during which the dregs of the populace abandoned themselves to violence and plunder. It was in the midst of this riot and uproar that the hot and hurried attempt was at last made to save the "Mississippi." Commander Sinclair, who had been assigned to the command, assumed his post, and took her out of the hands of the builders. With their assistance gangs of laborers amounting to upwards of five hundred

were set to work at freighting her with the machinery, tools, and materials of all kinds necessary for her completion.

The single precaution that seems to have been taken in advance for the emergency that had arrived was the engagement of two steamboats, the "Charleston" and "Peytona," to carry her away at the last moment. Those vessels, which should have been in attendance, had to be summoned to their post. The laggards did not make their appearance until after nightfall and were even then unprepared, being short of hands and without engineers. The captains evinced no zeal, and one broke out into abusive language. But there was no time to resent insolence or punish treachery. The single purpose in hand was to put the "Mississippi" on her passage up stream with all possible dispatch. Engineers and hands were supplied, and the two steamboats started with her in tow at about eight P.M. It soon became evident that their combined power was unequal to the task. The river was in one of its wild freshets, and half the night was spent in futile efforts to stem the rapid current. At length, finding that instead of advancing he was losing ground, Captain Sinclair abandoned all further effort for the time, and secured his ship to her old moorings.

It was now past midnight, and at this juncture a member of the Committee of Safety came forward with offers to furnish additional boats by early dawn. But dawn came without bringing any tidings of the promised succor. Sinclair then repaired on board of the "Peytona," and scoured the front of the city in quest of assistance from any quarter. He met with nothing but scenes of hurry, trouble, and devastation, boats abandoned by their crews, others already burning, others, again, crowded with passengers and piled with personal property in precipitate flight, but there was not a solitary one available for helping the "Mississippi." The spirit of the hour was "sauve qui peut."

He had left orders with his executive to set fire to that vessel as soon as the enemy hove in sight. On his way back from his bootless errand he saw the flames bursting from her sides. The leading ship of the enemy was in sight in the distance. One of the Tifts, who was on board of the "Peytona," was unmanned by the spectacle of the burning ship, and wept freely. His brother had perhaps deeper reason to be moved. He saw the same conflagration, at a moment when he was buoyed up with renewed hope, from the deck of one of four steamers which had been obtained during the night, and manned with negroes gathered from neighboring plantations by Captain Gilmer, a patriotic citizen of New Orleans, who was hurrying at the last moment with this force to the rescue.

The "Mississippi" was two hundred and sixty feet long, with an extreme breadth of fifty-eight feet and a depth of hold of fifteen feet. Her casemate sloped at an angle of about 36° to the horizon. The upper slopes were covered with three plates of iron one and a quarter

inches thick, each disposed in two horizontal courses below, making joints covered by the upper or bolting course running vertically. The lower slopes had two courses of the same thickness crossing each other, the one beneath running lengthwise, and the sides of the ship between these slopes had a double layer of plates placed lengthwise. The level portion of her shield or upper deck was spread with iron plates one and a quarter inches thick. She was pierced for eighteen guns. Her intended battery was a mixture of seven-and-a-half-inch and ten-inch rifles. Her engines were horizontal, with cylinders thirty-six inches in diameter, with two and a half feet stroke of piston. She was fitted with ten double-flued boilers in two different sets, thirty feet long each, and three propellers, whose shafts, nine inches in diameter, were, the central one fifty and the others forty feet in length. She was calculated for a draught, when fully equipped, of fourteen feet, and a speed in smooth water of from twelve to fourteen knots, and was adapted for sea as well as harbor and river service.

When the "Mississippi" was destroyed her construction had nearly reached its final point. Her armor was finished below the gun-deck, the upper plates were for the most part in place, and the men were laying and securing the bolting course up to the last moment. Part of her battery had arrived, and part had reached Jackson on the way. Her engine, boilers, and central shaft were in position, and her tanks, chain cables, and anchors waiting to be shipped. Two weeks more would have entirely completed her,—at least such was the confident expectation of the Tifts,—and put into active service on the river a ship of unrivaled strength, power, speed, and invulnerability. But the Fates decreed otherwise.

The "Arkansas" we have already referred to as the vessel that was conveyed from Memphis to the upper waters of the Yazoo for completion. Our notice of this ironclad must be scant for want of space. Like the others she had a sloping shield, which was covered by iron rail (double T); and her battery,—but in this we may be subject to correction,—we believe, consisted of ten rifled guns of 8-inch calibre.

Commanded by Commander Brown, this vessel issued from her river fastness, protected by a barricade of rafts and a small battery, on the 15th of July, 1862, bound to Vicksburg. Near the mouth of the river she met, as had been anticipated, a reconnoitering expedition of the enemy consisting of the "Carondelet," a Western ironclad, armed with 8- and 9-inch guns and one 100-pounder rifled, the wooden gunboat "Tyler," and the ram "Queen of the West," unarmed, but manned with a crew of sharpshooters. The engagement which followed was sharp and brief and very destructive to the enemy, whose shot and shell were wasted on the shield of their antagonist. The shattered and almost disabled vessels ran for shelter to the combined squadrons of Farragut and Davis, which lay directly on the road to Vicksburg,

followed by the "Arkansas," which dashed through this formidable barrier without a moment's hesitation, receiving, unharmed and at point-blank range, the fire of their 9- and 10-inch guns and delivering her own broadsides with fearful effect. Before the Federals had fairly recovered from the bewilderment of the sudden and unexpected onset she had dropped her anchor under the Vicksburg batteries, unharmed in hull or crew. On the other hand, in these rapid encounters, which occupied but a few minutes each, the enemy, besides the damages sustained by their ships, suffered a loss in killed, wounded, and missing of 78 men in all.

A few hours after the battle the Federals, under the cover of a dark night, made a desperate attempt to destroy the "Arkansas" in spite of the batteries protecting her, but were successfully repulsed. The attack was renewed on the night of the 22d with the same result.

The career of this vessel was destined to be brief. While on her way, on the 5th of the following August, to co-operate with General Breckenridge in an attack on Baton Rouge, she was disabled when she had reached the bend above that place by the breaking down of her port engine. It was patched up with such means as were at hand, but the engineer would not guarantee that it would last more than half a day. The next morning she started from her anchorage with the immediate purpose of attacking the "Essex" which was seen approaching up the river, when her starboard engine gave way. Being thus rendered helpless and unmanageable in full sight of the enemy, her destruction was the only means left to prevent her capture. She was accordingly run on shore and set on fire by the officer then in charge, Lieutenant-Commander Stevens, the officers and crew making their escape.

The impression made upon the Federals by the exploits and formidable character of the "Arkansas" is pithily expressed in a letter of Admiral Farragut to the secretary. "It is one of the happiest moments of my life," writes the admiral, "that I am enabled to inform the department of the destruction of the ram 'Arkansas.'"

It is not our purpose to follow up the naval preparations in detail. They began mostly with the construction of wooden vessels, for the American mind had been so little occupied with ironclads that the most enlightened among the officers knew little on the subject. It was Maury who proposed the first vessels that were built, and he rejected the suggestion that they should be mailed with iron. The idea, however, gradually gained ground, and at length the success of the "Virginia" in the battle of Hampton Roads determined the policy of the government. Thereafter all the naval engineering skill and mechanical labor that could be commanded was devoted to the construction of armored vessels. They were built at every available point,—Charleston, Wilmington, Richmond, Savannah, and on inland waters of the Caro-

linas, Alabama, and Georgia. As the work progressed, marked improvements were made on the original models. The submerged ends and knuckles, the characteristic feature of the "Virginia," were dropped out of the future plans or considerably modified, but the sloping shield prevailed in all the structures. In three instances the batteries were placed in low citadels plated with 6-inch iron. The vessels were generally built by contract with private parties, the government agreeing to furnish the metal for armor, engines, and shafting; these were supplied by the naval works at Richmond, Charlotte, and Columbus, and the armaments, projectiles, and all objects of pyrotechny were prepared by the ordnance establishments at Selma, Charlotte, and Atlanta, or Augusta after the last place had fallen. We have already more than once adverted to the scarcity of iron. During the whole construction of these vessels the want became more and more urgent. Finally by the fall of 1864 the last supply of that metal had been consumed, leaving on the stocks twelve vessels completed but for their armor, which would have required 4230 tons that never was obtained. This brought the construction of that class of vessels to a final close. The number which had been completed and commissioned up to the 24th of November, 1864, was 25. Of these 9, at that period, had been lost to the Confederacy,—viz., 2 by casualties, 4 burnt by their own commanders to prevent capture, 2 captured, and 1 destroyed by the enemy.

The number of wooden vessels of all classes and descriptions within the waters of the Confederacy fluctuated so much from month to month that it would be hazardous to state it positively without more reliable data than we have on hand. Probably they never amounted to more than fifty at any one time. The Confederate navy had also a peculiar class of boats fitted for submarine and torpedo service, which, under the charge of officers who devoted themselves to that specialty, proved a valuable auxiliary, not only for its capacity to inflict sudden and unexpected damage, but for the dread and distrust it inspired. In July, 1863, the Federal steamer "De Kalb" was sunk by a torpedo in Yazoo River. In April, 1864, the "Squib," a small torpedo-boat, darted unobserved under the cover of night through the Federal fleet off Newport News and exploded one of these engines under the bilge of the "Minnesota," greatly damaging the vessel without destroying her. In May an expedition of the enemy ascending James River was retarded in its advance to the speed of a half-mile per hour by the necessity of scouring the banks of the stream and dragging its bottom to clear the path of these dangerous impediments, and was finally diverted from the intended descent on Richmond by an explosion under the bottom of one of the leading vessels, which was hurled into fragments. And it is an event to be remember how, in August, 1864, the monitor "Tecumseh," in the midst of the fleet standing into Mobile Bay, vanished,

as it were, from the face of the waters with every soul on board by coming in contact with one of the torpedoes strewn in the channel.

From what has preceded it may be seen that by the fall of 1864 the Confederate navy had reached its maximum. To recapitulate, it possessed then 16 ironclads, 3 of which were rated floating-batteries, 50 wooden vessels (assumed), and 1 cruiser, the "Shenandoah," on the high seas. This final result of all the labors of preparation falls signally short of that foreshadowed by the letter of the Secretary of the Navy of May, 1862, but, considering the delays and difficulties and reverses that were encountered, and which we have but inadequately described, it is a proof of wonderful vigor and enterprise that so much could have been accomplished.

The general policy of the South throughout the war was to act on the defensive. So far as the navy was concerned, no other could have been pursued. Both the character of its vessels and their limited number rendered any systematic course of aggression impossible. The armored boats were adapted only for operating in smooth water, and the whole force was necessarily divided into detachments, occupying the most important points of defense, where each command was kept at bay by the superior strength of the enemy. The Confederacy was therefore compelled to submit to the humiliation of a continuous blockade without the power to raise it, its vessels for the most part lying idly at their anchors and passively awaiting events with steam up and fires banked ready for the emergency when it should arrive.

This state of things afforded but little scope for enterprises of any magnitude, but frequent opportunities occurred or were made for striking a blow by means of special expeditions. It would be a grateful task did our space permit to record some of the exploits, now half forgotten, that distinguished such occasions, but we must leave the proud story to the ampler pages of the history yet to be written, confining ourselves to one or two leading events in our naval operations.

The first ironclad employed by the South was a vessel of some power called the "Manassas." She was originally a ferry-boat, and was transformed into a ram by a private company in New Orleans by the addition of a casemate faced with iron $\frac{2}{3}$ inch thick, and an iron prow 10 feet long. She swam low in the water, and carried a 60-pound Dahlgren gun. The owners lent this vessel to Commodore Hollins for an attack on the blockading force in October, 1861, then consisting of the sloops "Vincennes," "Preble," "Water Witch," and "Richmond," all lying inside of the Southwest Pass.

With the addition to his flotilla of razeed river boats, five in number and carrying 11 guns varying from 24-pounders to 8-inch columbiads, Hollins, having secretly made his preparations, carried the enterprise into effect on a night so profoundly dark that objects were not visible twenty yards ahead. Issuing from between the Forts

Jackson and St. Philip, the little squadron, with the "Manassas," Lieutenant-Commander Wharley in the lead, dropped down the river so quietly that the surprise was complete. The crash of the ram as she buried her prow into the first vessel that could be discerned, which proved to be the "Richmond," followed by an appalling cry that rang out from the apparently sinking vessel, awakened the whole fleet to its first sense of danger. Fortunately for the "Richmond," her assailant suffered from the shock almost as much damage as she inflicted. Her prow was badly twisted and one of her engines disabled. In this crippled condition the ironclad found herself carried by the current all alone into the midst of the squadron, and, exposed as far as the darkness permitted to its concentrated fire, she would have fared badly, but, throwing up a rocket, the concerted signal, the five barges came sweeping down in full flame upon the Federals, followed by the flotilla, and caused a general stampede. The "Richmond," though with a great hole in her bow, contrived to keep afloat, and daylight disclosed the dispersed blockaders far down within the Southwest Pass, with two of their vessels stranded on the middle ground. The Confederates stood down the pass within range, and the little drama was closed by a distant cannonade, in which neither party suffered further damage. The "Manassas" had so well acquitted herself on this occasion that she became the property of the government by purchase.

The first great naval triumph of the South was the victory achieved by the ironclad "Virginia," in the memorable battle of Hampton Roads, on the 8th of March, 1861,—an event interesting not only for the immediate issues involved, but as introducing a new element in naval warfare and inaugurating a revolution in the means and methods of future encounters.

The "Virginia" was the first naval structure of any magnitude invulnerable to shot and shell that was ever launched upon American waters, if we except "Stevens's floating battery," designed for the protection of New York, the keel of which was laid in 1845. She was originally the "Merrimac" of the Northern service, and had shared in the general conflagration of the men-of-war at the Gosport navy-yard when the effort was made to destroy that depôt by a party under the command of Commander Paulding in April, 1861. She had been scuttled as well as set on fire on that occasion, but on raising and docking her it was found that the destruction had not extended below the water-line, and that the vital portions of her engine had escaped intact.

The design for converting the wreck of the old steam frigate into an ironclad ram was furnished by Commodore Brooke, the Naval Chief of Ordnance, who also devised the powerful guns of her battery. She was about three hundred feet long, with about fifty-five feet beam. The chief characteristics of the new form she was made to assume as an ironclad were an armored casemate, sloping at an angle of 45°, and

the submergence two feet below the surface of the water of her entire hull proper. The casemate was constituted by a wooden backing seven inches thick, covered with two layers of wrought-iron plates, each two and a half inches thick, disposed horizontally and vertically the one above the other. She had in addition a cast-iron stem or prow projecting four feet, and somewhat in shape of a hog's head. Her general appearance suggested the roof of a house or, perhaps, a rope-walk floating on the water with its eaves immersed. Her armament consisted of two 7-inch Brooke rifles, one forward and the other aft, with a broadside of two 32-pound Brooke rifles and six Dahlgren 9-inch shell guns. When she was fitted out, as the pressure for the supply of projectiles was very great on the Ordnance Department, and it was not expected that she would have any but wooden vessels to encounter, she was not supplied with solid shot or bolts.

The peculiar structure of the "Virginia" involved new and untried conditions affecting her speed, steerage, and general manœuvring which there was no opportunity of testing. The ship was begun the latter part of June, 1861, completed the latter part of February, 1862, and hurried into action the moment she was equipped. In point of fact, her experimental trip was made when she plunged into battle.

The Federals had been watching with no little concern the work as it progressed on the "Virginia," while hurrying at the same time to completion the "Monitor," of which we shall directly have occasion to speak. Meanwhile, a powerful fleet had been mustered in the waters near Fortress Monroe and Newport News, one of whose principal objects was to intercept and destroy the "Virginia" as soon as she should make her appearance,—a task which with such a force might, before the unhappy experience of the 8th of March, have been reasonably deemed easy to accomplish. The Federal squadron consisted of the steam frigates "Minnesota" and "Roanoke," of fifty guns each, the sailing frigates "Congress" and "St. Lawrence," of fifty and of twelve guns respectively, and the sloop-of-war "Cumberland," of twenty-four guns. The guns were all of 8- or 9-inch calibre, and made in the aggregate one hundred and eighty-six broadside pieces, in addition to which were several 10-inch guns on pivot. This force of the enemy was further swelled by six or seven steam gunboats heavily armed.

Everything seemed propitious when the "Virginia," bearing the broad pennant of Commodore Buchanan and accompanied by two small steamers, the "Beaufort" and "Raleigh," of one gun each, at eleven A.M. started from the Gosport navy-yard to encounter the enemy. The sky was bright, the water smooth, the hostile vessels within easy reach, and the officers and crew cheerful and confident. And yet at the moment the success of the enterprise could by no means have been held as certain. The ironclad had yet to prove her invulnerability, and the ordeal in prospect was a formidable one. The Federal squadron

was divided into two bodies; the "Minnesota," "Roanoke," and "St. Lawrence" lay near Fortress Monroe, and the "Congress," with the "Cumberland," was anchored off of Newport News, so that, whichever field of battle was chosen, it was not only the guns afloat that were to be met, but those on shore.

A part of the Confederate fleet, the "Patrick Henry," of twelve guns, the "Jamestown," of two, and the "Teazer," of one, at this time were waiting, a little inside of the mouth of the James River, the first shot from the "Virginia" as the signal to run the gauntlet of the batteries at Newport News and take their share in the fight. The accession of these vessels would swell the number of Confederate guns to twenty-seven.

Buchanan reached Sewell's Point at one P.M., and found the enemy, who had caught sight of his smoke, on the alert in both directions. Doubling round Craney Island flats and taking the lead he selected the "Cumberland" as the first object of attack, between which vessel and the Confederates there lay a clear reach of about three miles of unobstructed water. He bore directly down on that ship, and, notwithstanding the "Congress" lay close to his path, held unflinchingly to his course till he struck her. As he came within easy range of the "Congress" he opened the battle with his bow guns charged with grape, which flew over her or lodged in her sides without much damage. This drew from her a full broadside when the two ships were about twelve hundred yards apart. Her shell burst against the armor and fell in fragments, and her solid shot glanced or rebounded and tumbled into the water; both were as harmless as would have been a shower of paper bullets. The return broadside of the "Virginia" was terribly destructive, crashing through the wooden sides and slaughtering a large number of the crew.

Still holding steadily to her course, she pushed onward and past the "Congress," and, receiving the same ineffectual fire from the "Cumberland," poured into her as she approached the contents of her bow gun, which raked her fore and aft and literally mowed down the men in heaps as they stood at their quarters. The next moment, in the midst of this frightful carnage, the ironclad, with the impetus of a full head of steam, plunged headlong into the bows of her antagonist with instantaneous and decisive effect. The crash of the rending planks and timbers was distinctly heard in the midst of the roar of guns and the reverberations of the armored casemate on which the missiles were playing as upon an iron drum. The "Cumberland" was a helpless wreck from that instant. As the "Virginia" withdrew from the contest she left a great breach behind, into which the water gushed in torrents, and the hapless ship began at once to settle. In a short time she heeled over and sank, grounding at a depth of fifty feet with nothing visible left but the tops of her masts and her flag still flying. The contest,

though so unequal, had been as desperate as it was brief. The firing from both ships had never ceased from the beginning to the end of the encounter, and,—be it said in all honor to the heroic defenders of the Stars and Stripes,—the last shot from the sinking ship came from guns that were about dipping their muzzles into the water. So rapid had been the destruction of the "Cumberland" no time was afforded to save the wounded, and those incapable of helping themselves were carried to the bottom. The rest of the crew jumped overboard as the ship went down, and many were drowned before being reached by the boats which were sent from Newport News to their rescue. Out of a complement of three hundred and seventy-six men, officers and crew all told, one hundred and seventeen were lost and twenty-three missing.

While the "Virginia" was thus proving her resistless power on the "Cumberland," the "Beaufort" and "Raleigh" were each playing their single rifled piece upon the "Congress" with quick and sharp results, the odds against them being largely compensated by their ability through steam-power to choose distance and position, as well as by the larger and fixed target the enemy presented.

As the "Cumberland" disappeared from the scene the Confederate vessels hove in sight in rapid approach from James River. They dashed through a storm of shot and shell, grape and canister, poured into them from the batteries of Newport News, in which the "Patrick Henry" in the loss of a few men was the only sufferer, and joined the two small steamers in the attack on the "Congress." Meanwhile, to escape the fate of her consort that vessel, with the help of her top-sails and a tug-boat, had contrived to put herself in shoal water, where she grounded.

While all this was going on Buchanan was manœuvring for the best position to turn his guns on the "Congress." This was a matter of no little difficulty in the contracted space of the theatre of the combat with a vessel of the length and draught of the "Virginia," so that he was compelled to run past the batteries of Newport News for a more roomy area in the mouth of the James, in order to put her head in the proper direction. The "Congress," mistaking the movement for a withdrawal from action, gave three cheers. The shore batteries opened a furious fire during the ironclad's passage to and fro in close proximity. The pounding she endured did not start a single rivet or bolt of her armor. Her return fire silenced some of the batteries, blew up a steamer at the wharf, and sank a schooner.

The fate of the "Congress" was now swiftly determined. The "Virginia" took a raking position under her stern at a distance of about two hundred yards, and delivered her shot and shell with all the deliberation and precision that might have attended a holiday practice. The "Congress" had thus the concentrated fire of the whole squadron upon her, which she endured to the last moment. It was not until her

whole broadside batteries were disabled and her crew were rapidly falling in every discharge from the enemy that two white flags were displayed, one at the gaff and the other half-masted at the main.

This gave a momentary pause to the havoc. The "Beaufort" and "Raleigh" were despatched with orders to take possession, make prisoners of the officers, allow the crew to land, and burn the frigate. While in the execution of this mission, and while the white flags were still flying upon the conquered ship, a fire was opened upon those vessels from the shore batteries. This took place after the formal surrender of themselves and of their vessel had been made on board of the "Beaufort" by the commanding officer and executive, who, at their own request, had been temporarily released to assist in having the wounded transferred to the two steamers. Those vessels were thus compelled to leave, and made their way to Norfolk with such of the wounded as they had received.

Buchanan now sent a boat in charge of Lieutenant Minor, convoyed by the "Teazer," with orders to set fire to the "Congress," but was baffled in this fresh effort by a renewal of volleys from the enemy upon the party, under which some lives were lost and Minor was wounded. Finally, under these repeated provocations, he determined to effect his object by incendiary shot. This was soon accomplished, and the "Congress," which had been abandoned by her officers and crew, who saved the wounded in their retreat, was speedily wrapped in flames and reduced to fragments as soon as they reached the magazine.

Leaving the burning vessel to her fate, the "Virginia," with the "Patrick Henry" and "Jamestown" in company, next proceeded to attack the "Minnesota." That vessel, manœuvring in shoal water to avoid the direct onset of the ironclad, had run aground, and was now a firm and fast fixture about two miles from Newport News on the north side of the North Channel. With the "Roanoke" and "St. Lawrence" she had come late into action, in which they engaged at long range.

The attack on the "Minnesota" occupied the three closing hours of that eventful day. The "Virginia" opened her fire, but without serious effect, at a distance of about one mile from the enemy, the nearest point she could reach. The rifled guns of the "Patrick Henry" and "Jamestown" were now telling and did considerable damage. The only gun the "Minnesota" could bring to bear was her 11-inch gun or pivot.

Night at last put an end to the contest. The Confederates, satisfied that the shoal would hold fast the frigate till next day, doubled the west end of the middle ground and made their way for anchorage under Sewell's Point, merely pausing to give her a parting broadside as they came abreast of her in their passage thither.

About nine o'clock in the evening of that exciting day the worsted

Federal squadron, or what was left of it, was cheered by a new and important accession to its force in the arrival of the "Monitor." The fame of that iron vessel had preceded her, and her arrival at so opportune a moment was as welcome as it was unexpected. We have no space for an elaborate description of her. She was built after a design and plan devised by the distinguished mechanician Ericsson, and had no antetype in any known naval structure. She was smaller, lighter, and from her inferior draught and greater mobility was infinitely more manageable, than the bulky competitor against which she was about to be pitted. She swam the water at a depth that brought her metallic spar-deck flush with the water and offered no mark to the shot of the enemy but a revolving central citadel ten feet high and twenty in diameter, surmounted by a pilot-house in the form of a low turret, and concentrating within its impervious iron walls her whole battery, which consisted of two 11-inch rifled guns.

The contest under this change of conditions was renewed early in the forenoon of the 9th, the "Virginia" now commanded by Lieutenant-Commander Jones, who had succeeded Buchanan, disabled by a severe wound the previous day. The "Virginia" was again supported by the "Patrick Henry" and "Jamestown."

The combat, whose fluctuations it would be tedious to follow in detail, was of a novel and striking character. It resolved itself largely into a duel between the ironclad and the "Monitor," the one cumbrous and heavy, dragging at times in the mud owing to her great draught, and requiring a free scope for effective evolutions, but fighting in a very restricted space; the other of light draught, agile, and buoyant, and turning round in an area whose diameter might almost be measured by her own length, while each vessel was impenetrable to the missiles of the other.

The efforts of the "Virginia" were mainly directed to two objects,—viz., to sink her antagonist by running her down and to improve every opportunity to hurl her shot into the "Minnesota," still lying helplessly aground. The "Monitor," on the other hand, while not declining an engagement at close quarters, aimed at manœuvring so as to elude an onset that might be fatal, and, while endeavoring to crush the armor of the "Virginia" with her heavy 11-inch guns, at the same time sought to maintain a position that would most effectually cover the stranded frigate.

Twice the "Virginia" succeeded in running into her, but not with the required impetus or a stroke sufficiently direct to effect her purpose. The buoyancy of the struck vessel saved her: she glided from beneath the blow and swam as upright as ever.

During the action the "Minnesota" was very much cut up in spite of the interposition of the "Monitor." One shot especially from the bow gun of the ironclad produced great havoc, battering down her

bulkheads and in its passage along her decks exploding cartridges, which set her on fire. The next shot blew up a steamer alongside of her. The rifle guns of the two steamers did also their part in crippling her.

On this occasion the "Minnesota" was able to employ her broadside guns, which in one instance were leveled against her adversary at point-blank range, but they might as well have been discharged in the air. In the midst of the battle the ironclad ran on shore. With her massive dead weight the position was a critical one, but luckily she was backed off before any advantage could be taken of the accident.

The struggle between the combatants was maintained with desperate earnestness on both sides without other results than those noted, when the Confederate commander thought it useless to protract it. He was unprovided with solid shot or bolts, which might have proved effective against the citadel of the "Monitor," on which his shell could make no impression, and that vessel had retired to shoal water beyond the reach of attack by ramming. The "Minnesota" was also inaccessible to close approach, and believed to be entirely disabled. There was, therefore, nothing left to accomplish, and about noon the Confederate squadron left for Norfolk to repair such slight damages as they had sustained during the two actions.

Indeed, the damage, considering the pounding to which the "Virginia" had been exposed, was so inconsiderable that the hopes of the most sanguine as to her powers of endurance were more than realized. A shallow indentation on two of her plates was the only mark left upon her armor; her steam-pipe and smoke-stack were riddled, two of her guns were shorn of their muzzles, her anchors were lost, her stem twisted, and her prow was left in the breach it had gored in the bows of the "Cumberland." Thus in a short time every repair was completed, and, supplied with solid shot and bolts, she made the tour of Hampton Roads, in the hopes of testing them on the "Monitor," but no engagement followed.

The question of the value of ironclads for harbor defense as compared with wooden vessels was determined in Hampton Roads at once and forever. In the two actions the entire loss of the "Virginia" was two killed and seventeen wounded. The disastrous result to the Federals may be summed up as the complete disablement of one frigate and the destruction of another, with a first-class sloop, and the aggregate loss on board of the two latter vessels of two hundred and fifty-five killed and twenty-three missing. The loss on board of the disabled vessel, which must have been considerable, we have no means of ascertaining.

We have been led to dwell at some length upon the actions in Hampton Roads by the novel and remarkable expedients that were first employed in these contests. The "Virginia" came out of the conflict a

historical ship. In all future narratives of naval war she will loom up conspicuously as having determined a new line of development in naval forces leading to a complete revolution in the naval systems of the whole world, as well as those of coast and harbor defenses. The triumph of that vessel was a brilliant one, but short-lived. The story of her final fate is soon told.

When the exigencies of the war compelled the evacuation of Norfolk, the "Virginia," now under command of Commodore Tatnall, was left in a critical position. She had no means of sustenance except a limited supply, and no means of renewing that supply when exhausted. She was lying near Craney Island, and merely mistress of the waters within reach of her guns for a few uncertain days.

In this dilemma Commodore Tatnall, on whom the government seemed to have silently cast the responsibility of disposing of the ship, determined if possible to reach Richmond. One obstruction only lay in his way, but that was formidable. A shoal, on which at the top of the flood there were three feet less water than his vessel drew, stretched across the river a little above City Point. The pilots promised to tide him over safely if he could reduce the draught, which was at the time twenty-two and a half, to eighteen feet. In the emergency nothing was left but to make the attempt. Every object of weight except what was actually necessary for defense was cast overboard to lighten the ship; shot and shell, chains, anchors, water, coal, provisions, all followed one another into the river. But all was of no avail. The ironclad rose out of the water until her draught was lessened to nineteen and a half feet, and there she stood with all the movable heavy material out of her and a broad streak of unsheathed bottom resting above her water line. The alternative then presented itself of a certain capture by the enemy, even by blockade, within a time that might be calculated, or her destruction. A council of war decided that she should be burnt, and the career of the "Virginia" was thus closed on the morning of May 11, 1862.

Eventually, the Confederate navy passed out of existence piecemeal. It was a natural pride that prompted the determination in the last strait to destroy the ships rather than leave them as trophies to swell the triumph of the victors. As city after city fell along the coast, the final act before evacuating each was to set fire to the public vessels, and when, after the abandonment of Richmond, the Federals took possession, they found the James strewed with the fragments of the "New Virginia," the "Richmond," and the "Fredericksburg," all ironclads, and about six wooden gunboats, the last remnant of the Southern navy, save one only cruiser on the high seas, the "Shenandoah," which at the moment was unconsciously floating at her gaff the flag of a nation wellnigh passing away.

THE CHINESE ARMY.[1]

In order to understand aright the present state of military affairs in China, we must first glance at the later history of the Chinese Empire; and in order to form an opinion of the future, it is necessary to make an effort to comprehend the mental state of the Chinese nation.

I shall, therefore, commence by a brief account of the establishment of the present alien dynasty.

I propose, then, to give as good an account as I can of the present military forces of China, and to conclude by a consideration of future possibilities, based on the idiosyncrasies of the Chinese character and on the Chinese system of administration.

It was after many strange vicissitudes, after the rise and fall of many dynasties, after the appearance and extinction of Mongols, Kins, and Khitans, that the native Chinese dynasty of the Mings was established in 1368.

During the reign of the eleventh monarch, the Eastern Tatars, or Manchus, first became numerous and troublesome. The first chieftain of these tribes who attained celebrity was Tien-Ming, who, in the reign of the thirteenth Ming Emperor, published a manifesto in which he vowed vengeance against the Chinese for offenses committed against him; and after his death his son continued the war he had commenced.

The misgovernment of the latter Mings had so alienated the affections of the Chinese people that the country was overrun with bands of insurgents, the leaders of each asserting a claim to the throne, and all of them rendering their country an easier prey to the warlike Manchus, who not only strove to subdue the Chinese, but endeavored also to bribe the troops from their allegiance.

At length a native rebel, Le-Tze-Ching, who had, after eight years' fighting, established his power over one-third of the country, entered Peking in 1644, when the last Ming Emperor, deserted and unsupported, first stabbed his daughter and then hung himself, thus ending the Ming dynasty, which had lasted two hundred and seventy-six years.

[1] Reprinted from the Journal of the Royal United Service Institute, vol. xxiv. No. CVI. (1880.)

In spite of years of internal troubles the supporters of the Ming dynasty had still on the borders a general, Wu-San-Kwei, at the head of an army efficient enough to keep off the Manchus.

And here it may be worth while to devote a few words to the consideration of the theory and practical working of the normal Chinese autocracy.

"The reigning Emperor of China is absolute because he is in the eyes of his people the Son of Heaven, the chosen agent and representative on earth of the supreme ruling-power or providence,—of which the Chinese have always had a lively conception under the name of Teen or Heaven.

"The idea of divine right by birth has never been known to the national mind of the Chinese, and in modern times it is not positively known during the reign of any one sovereign who will be his successor in the exercise of the divinely delegated power.

"Both in theory and in practice the primary claim to the successorship is given by the death-bed or the testamentary nomination of the reigning sovereign; but it is by good government alone that the nominee can fully establish his divine *right*.

"When by good government, in accordance with the divine principles as laid down in the national sacred works, he has given or preserved to the people peace and plenty, and, as a consequence, established himself in power by his hold on the national esteem and affection, then only will they consider him, and then only will he consider himself, the veritable Son of Heaven.

"Natural affection has almost always led to the nomination of a relative, mostly a son, but six of the Emperors of the present dynasty have not been the eldest sons of their fathers, while the fact is ever present to the national mind that the revered ancient monarchs, Yaou and Shun, each passed over his own son, because unworthy, and nominated a stranger."[2]

Wu-San-Kwei, therefore, now found himself at a crisis at which he, like every other Chinaman, had to decide for himself whether the "divine commission had been withdrawn from the present house of Mings, and, if so, to whom it had been given.

"Had Wu-San-Kwei and his army recognized Le-Tze-Ching as the new divinely appointed, it is possible that a new native dynasty would have been established, and that, instead of the Manchus conquering China, the Chinese would have annexed Manchuria."[3]

Wu-San-Kwei, however, decided that the rebel Le-Tze-Ching, at all events, was not the new recipient of the divine commission, but, as he could not hope at once to fight him and also to keep out the Manchus, he decided to invite the co-operation of the latter, in the hopes that when he should have succeeded in crushing the native usurper he might find a means of expelling the foreign barbarians.

[2] "The Chinese and their Rebellions." By T. T. Meadows. [3] Ibid.

"It had always been an established principle that the true policy towards all non-Chinese people or barbarians was to keep them off; a temporary pressure of circumstances induced Wu-San-Kwei to violate this rule, and the consequence was the subjection of his country to barbarians, and ultimately the extermination by them of his own family.

"Although looked on historically as a well-meaning but unwise statesman, he was undoubtedly an able general. He exercised a decisive influence on the fortunes of his country, and whenever he fought, either with or against his self-imposed auxiliaries, the Manchus, he was always successful as a warrior."[4]

It was in the year 1644 that at length the Manchus, with the aid of Wu-San-Kwei and many Chinese adherents, entered Peking and declared their young King Emperor.

"Wu-San-Kwei had been previously induced to leave for the west in pursuit of the usurper Le-Tze-Ching. At the death of the latter rival the Manchus had recourse to the old system of feudal government, and, by creating Wu-San-Kwei a vassal prince of one or two of the western provinces, obtained from him and the people under him an acquiescence in the domination of a Manchu sovereign at Peking."[5]

After a seven years' struggle, and by constituting three of the Chinese adherents above alluded to vassal princes of three southeastern provinces, that part of China was brought to a state of semi-subjugation.

Later, about 1673, when Kang-He, the second Emperor of the Manchu dynasty, attained his twentieth year, Wu-San-Kwei threw off his allegiance and marched an army northwards against the Emperor. The southern vassals joined him, but, owing to disunion among the Chinese, Kang-He, who was a sovereign of rare ability, and who, while retaining the hardy habits of his progenitors, had had the advantages of a Chinese education, succeeded in the course of a ten years' war in completely conquering the southeastern provinces and incorporating them into the centralized system.

Wu-San-Kwei died in 1678; in the following year the armies of Kang-He, the Manchu Emperor, marched westwards into his State, reduced it to subjection, and put every member of his family to death.

His name, however, is not forgotten in those distant regions; and at the present time the river that winds at the base of the glorious mountain of Nen-Da is spanned by a bridge said to have been built by him, and across which he marched to chastise the barbarous mountain tribes.

Still, the Manchus felt that their military power was the original cause of their advent to dominion, and hence they naturally endeavored

[4] "The Chinese and their Rebellions." By T. T. Meadows. [5] Ibid.

to retain it intact. Besides a very large Tatar garrison at Peking, they established smaller garrisons in many of the provincial capitals and in other important points in the provinces.

The forces of the alien Manchus are now known as the Banner army, so called because the three nations that compose it are ranged under eight banners.

These three nations are:

1st. The Manchus.

2d. The Mongol Tatars.

3d. Chinese descended from those adherents of Wu-San-Kwei who entered Peking with the Manchus in 1644, and who afterwards furnished vassal princes for the southeastern provinces.

They number roughly some 230,000 non-commissioned officers and privates, besides 40,000 élèves (paid expectants to the higher ranks), and 5000 artificers and followers.

There are about 80,000 in Peking, another 50,000 are distributed about the province of Pe-Chih-Li. There are 40,000 in Manchuria, and the remainder furnish the Tatar garrisons of the chief cities throughout the Empire.

This force is in 41 grand divisions, not all of the same strength, each with its proper proportion of officers of the nine grades.

The first is the Imperial Body-Guard, 1700 strong, for guarding the person and apartments of the sovereign.

Two others, 16,000 altogether, furnish guards for the palace gates, etc.

The safety and order of the city of Peking are in charge of one of the grand divisions, called Pu-Kiun-Ying, numbering some 23,000 non-commissioned officers and men; 15,000 men are daily on duty, and are charged with the prevention of robberies, murders, etc.

There are small contingents for guarding the imperial mausolea within and beyond the Great Wall.

Six grand divisions, numbering altogether some 40,000, form the cordon of the 25 garrisons, and are stationed in the principal cities throughout a tract of country bounded on the north by the Great Wall from Kalgan to Shan-Hai-Kuan, and extending thence to the sea.

Four of these garrisons together forming the left wing cover Peking to the southeast, another five similarly form the right wing and cover the capital to the southwest.

Six garrisons, with their headquarters at Mih-Yun, are extended to the northeast and west.

The Shan-Hai-Kuan command of five garrisons is spread from the sea along and within the wall as far as the Hsi-Feng-K'ou Pass.

Five garrisons form the Kalgan command, and there is besides a strong garrison under a Tu-Tung (almost the highest military officer) at Jehol, the summer palace of the Emperor.

But by far the most important of all the Banner forces is that which is known as the Hiau-Ki-Ying, and which, according to Sir Thomas Wade, is the only corps which can have any claim to be considered as an army. They number some 36,000, besides 26,000 élèves.

But it is commonly believed that of the whole Banner forces throughout the Empire, at the present time, no more than 30,000 of the Hiau-Ki-Ying in Peking, with perhaps another 18,000 of those that make up the 25 garrisons, can be said to be effective.

Even of these the whole do not, it is believed, drill in the European fashion; and if, at this date, they are all armed with modern weapons, it is as much as can be said.

Information, however, is most difficult to obtain in Peking. Military exercises are almost universally carried on in the Imperial hunting-park, an immense tract of country surrounded by a wall, the access to which is jealously forbidden to foreigners.

In, and perhaps also in the neighborhood of, Peking there is a force of field artillery with modern breech-loading guns, but of their numbers and effectiveness I can form no idea.

In the remote western provinces I can, from my own observation, certify that what we should call soldiers have no existence; the men are there, doubtless, so are their wives and families, but bows and arrows, so far as I saw, were the weapons with which they were armed; and although it is by competitive examination that promotion is gained, when it is borne in mind that, for the most part, in those provinces remote from the capital, at all events, feats of physical strength and proficiency with the bow are the subjects in which the aspirants to military honors are tested, it will be readily conceived that the vast number of men borne on the strength of the Tatar Bannermen are little better than a paper army.

Thus, like a mighty rock in the bed of a torrent, has China for centuries resisted the stream of civilization. Will it at length yield, and sweep onwards with resistless force? is a question that must engage the attention of all thoughtful minds.

This same army, however,—contemptible though it may appear in its present condition,—does, nevertheless, offer the basis on which may be raised the fabric of a complete and organized force. From the little that I have said, it will be seen that the germs of an organization are even now not wanting. Life may some day be instilled, and a power of terrible might spring into existence.

The numbers that I have given are, as far as can be gathered, those mentioned in the Imperial books as receiving pay; but as the Manchu soldiers always have with them their wives and families, the numbers in the Tatar cities are probably very much in excess of those reckoned. These Tatar cities, in fact, form with their inhabitants species of military colonies.

Large cities in China are always surrounded by a strong wall, and many of the principal among them are divided into two parts by a wall as strong as that that surrounds the entire city.

One of these parts forms the Tatar city to which I have just alluded, and which is entirely inhabited by these Bannermen and their families, and the other part is the regular Chinese city. There is not, so far as I am aware, any instance of a Tatar city entirely by itself.

The mere sight of the garrison, Mr. Meadows observes, has been a continual reminder to the Chinese of their being under the dominion of an alien barbarous race; and as the latter have always borne themselves with much of the insolence of conquerors, their acts have been a constant excitement to disaffection. These garrisons form one deviation from the fundamental principles of Chinese government, as a partial attempt to substitute a physically supported despotism for a morally supported autocracy.

The next force that we have to consider is the Luh-Ying, or the troops of the Green Standard.

This force is composed entirely of Chinese, and is often by foreign writers inappropriately styled militia. It is, in fact, the constitutional army of China,—the Bannermen being, as I have pointed out, the soldiers of an alien though suzerain power.

The duties of the Luh-Ying are, however, by no means confined to those of a European army; the responsibilities of a police force are imposed on them; by far the larger portion of the Luh-Ying land force seems to be devoted to the duty of preventing robbery, contrabandism, and other crimes. They escort stores, bullion to the Mint, or criminals from one jurisdiction to another; they assist at the collection of revenue, and the officers charged with the supervision of river embankments or the important duties of transmission of grain have a certain force of Luh-Ying at their disposal.

Besides the land force, the Luh-Ying mans the navy of the seaboard provinces, and, as we have seen in the Banner force, a distinct organization of divisions and garrisons, each under its general; so there is for each of the eighteen provinces a Chinese army, complete in itself, and under the supreme control of the Governor-General of the province, and also for the seaboard provinces a naval force.

So completely are these forces under the Governors-General of provinces that even the Imperial Cabinet at Peking finds it very difficult, and sometimes impossible, to induce these officers to move their army beyond the borders of their province.

The strength of these provincial armies varies with the size of the province, and with the duties they have to perform.

Thus, in Kwan-Tung there are 43,000 of what are called mobile infantry, 22,000 garrison infantry, 2000 cavalry, with nearly 800 officers of various grades.

Of these 68,000, about one-third are water soldiers, forming a naval force cantoned on shore, for this province has an extensive sea-coast and is liable to the depredations of pirates.

A large land army is necessary also, not only on account of its extensive area, but also because there are within its borders wild mountaineers that have to be kept in order.

In Ngan-Hui, again,—an inland province inhabited exclusively by Chinese,—there are no more than 8000 of the Luh-Ying.

Taking all the provinces, the average for each is about 34,500 men and 640 officers,—one officer to 52 men.

Over each province in China there is generally a Governor-General,[6] or Tsung-Tu; but in some cases there is but one Governor-General for two provinces. Under the Governor-General there is in every province an official called a Fu-Tai, or Governor. This latter, though a civilian, is the commander-in-chief of the armies.

In this command he is assisted by generals and other military officers, but the chief command of an army, whether in peace or in war, is usually bestowed on civilians; for the Chinese hold military men of all grades more or less in contempt, inasmuch as the latter do not pass the literary examinations, and are without those literary qualifications and degrees which alone entitle Chinamen to the respect of their fellow-countrymen.

The Chinese think that a literary official whose talents have been severely tested, both by examination and by the practice of often difficult official duties, must be superior in every way to a military official who is unlearned and whose talents have not been proved. They argue also that talented literati, who, even though they may not have been occupied with military matters, yet must in the course of their studies have read much of them, will be better acquainted with strategy, and in every way better fitted for the command of an army, than an ignorant military official.

Nor are they altogether without reason. During the rebellion of the Tai-Pings, the Governor of Kuang-Si addressed a letter to the Governor of Hoo-Peh, urging the latter to send him troops as reinforcements. This letter dealt with many subjects, and in it the writer not only describes his own strategy with force and clearness, but he compares his own measures with those of the most celebrated generals of history, such as Yang-Lao, of the tenth century, and Sung-Pin, whose campaigns were fought 341 B.C., and with whose actions he was evidently well acquainted; he also shows a complete knowledge of the army organization of other ancient dynasties, and certainly in a large measure justifies the Chinese system of putting civilians in the chief command of the troops.

[6] This officer is sometimes styled Vice-Roy by foreigners, but the title Governor-General is much the better of the two.

The Luh-Ying, or forces of the Green Standard, are little more than a military constabulary. A small proportion are probably armed with modern weapons, some may be drilled in the European style, but though they must not be despised, inasmuch as they, as well as the Bannermen, could with energy and skillful officers soon be organized into a great and powerful army, yet, as they are at present, they can be looked on as little better than a body of men who would, if called together, be not very different from an armed mob. Indeed, it is to be doubted if they are much, if at all, in a better state of organization, equipment, or discipline than they were some thirty years ago, when Sir Thomas—then Mr.—Wade, wrote as follows:

"But it is in the Luh-Ying force that disorder runs riot, and, the bulk and distribution of this considered, the picture of its condition drawn by members of the present Ministry best shows how defenseless in the arm in which her chief reliance should be placed is this great Empire become."

Sir Thomas Wade then quotes among others the President of the Banqueting Court, who states that the troops of the Green Standard are unacquainted with the use of cannon, musket, sword, and spear.

Another laments that the army is quite disorganized; the officers falsify returns and make deductions from their soldiers' pay.

The ranks are half empty, half filled with vagabonds, of whom the weaker are incompetent and the stronger in league with smugglers and robbers. Men whose names are on the roll send any fellow who has not the sense to earn his bread, as a substitute. Such desert before an enemy, or never wait to come in front of one.

In the letter to which I have already alluded, written by the Governor of the Province of Kuang-Si in 1851, that officer speaks of "the cowardice of his troops." He says also, "Our troops have not a tincture of discipline: retreating is easy to them, advancing difficult." The troops were all alike useless.

In July, 1851, the *Peking Gazette* contained a memorial by the Lieutenant-General of the Canton Bannermen (a Manchu). He states that the army has never recovered from the disorganization caused by the want of success in the British war, so that the troops do not attend to orders, regard retreat on the eve of battle as old custom, and the abandonment of places they should hold as an ordinary affair.

But there is yet another force to be considered, and it is a strange illustration of the anomalous state of things that exists in the Chinese Empire that we find the Governor-General of the province in which the Imperial capital is situated in possession of a large army, and that the only force worthy of the name in the Empire.

Li-Hung-Chang is the powerful Governor-General of the province of Pe-Chih-Li. It is believed that he is much feared at court; it has even been whispered that he has aspired to be the founder of a new

Chinese Imperial dynasty, and in any case it may be said that he is one of the most important men in China.

Li-Hung-Chang is a native of Seu-Chou, in the Ho-Fei district of the province of Ngan-Hui.

He was born somewhere about 1830, and started in life as a sort of pleader in the yâmens of his native province. When the rebels invaded Ngan-Hui, he was in command of a small irregular force; he was invited to Nanking and became a secretary in the army of Tseng-Kwo-Fan, then Governor-General of the two Kiang, and who was successful as a general against the Tai-Pings.

Tseng eventually nominated him in 1861 to be Governor (Fu-Tai) of Kiang-Su, which province was at this time overrun with rebels; and it will be recollected that he acted with Colonel Gordon at Su-Chou.

In 1866, Li succeeded his patron, Tseng-Kwo-Fan, as Governor-General of the two provinces of Kiang-Si and Kiang-Su.

In the spring of 1870 he was ordered to march against the rebels in Shen-Shi and Kan-Suh. At this time the Imperialist forces were under Tso-Tsung-Tang (familiarly known as Tso-Kung-Pao), and had been defeated by the rebels, who previously to the arrival of Tso had been forced back by the General To-Ta-Jen, who was killed in battle in 1866; and when Li marched from Wu-Chang-Fu up the Han River, the city of Si-Ngan-Fu was completely surrounded with rebels, and many people in it had died of starvation.

Li-Hung-Chang was now in command of 40 battalions of the nominal strength of 500 men each; all these were armed with foreign arms of precision, and some of them had been drilled, more or less, by foreign officers.

He had, however, scarcely arrived in Shen-Si when the Tien-Tsin massacre took place, and he was called to Pe-Chih-Li, of which province he is now the Governor-General.

When Li-Hung-Chang returned to Tien-Tsin, he left his troops in Shen-Si, giving the command of them to General Liu, who, jealous of his military superior, Tso-Sung-Tang, made little use of this force, the very name of which had been sufficient to drive the rebels out of the province of Shen-Si.

In 1871, Liu was replaced by Tsao-Chu-Men, who with 22 battalions of Li's troops marched westwards, the other 18 battalions returning with Liu to Pe-Chih-Li.

Of the present numbers and constitution of this army of Li-Hung-Chang very little is known, and I regret that I am unable to do more than indicate its existence. Whether any of the 22 battalions left by Liu in Shen-Si have since returned to Pe-Chih-Li, I cannot say; but it is certain that Li-Hung-Chang has now a very large number of well-armed troops.

They are chiefly cantoned in the neighborhood of Tien-Tsin, and they garrison the forts at Ta-Ku and Peh-Tang, which are heavily armed with Krupp guns.

In the army of Li-Hung-Chang there is also a fair proportion of field artillery armed with Krupp guns.

The soldiers are mostly natives of Ho-Nan and Ngan-Hui (Li's native province). It is said that some are drawn from the Luh-Ying, or forces of the Green Standard, many served under Li-Hung-Chang during the rebellion of the Tai-Pings, and some come from the ranks of the Tai-Ping rebels themselves.

In East and West Kan-Suh the regular army, as enumerated in the Imperial books, should be some 10,000 Bannermen and about 50,000 of the troops of the Green Standard.

But during the last ten years armies have been dispatched thither and beyond to Ili and Kulja, both from Yun-Nan, and as I have before stated from Shen-Si, and I am not aware that the materials exist for an accurate estimate of the total strength of the force that is now free to face the Russians.

The Yun-Nan army was that set free after the capture of Ta-Li-Fu and the final overthrow of the so-called Penthays, and which marched to Kan-Suh to assist in the war in the far west.

Very little is known of the composition of this Kan-Suh army, but, as far as can be gathered, the total force employed by the victorious General-in-Chief, Tso-Tsung-Tang, seems to have been some 60,000 to 100,000 men. Richthofen says, that in 1872 the Governor-General of Kan-Suh had the immediate command of 200 battalions, not counting the troops of Li-Hung-Chang, then under General Liu.

These were mostly, if not entirely, armed with breech-loading rifles, and there was also a fair proportion of field artillery with them.

That the performances of this army are highly creditable must be at once admitted. The march itself from Ta-Li-Fu of any considerable body of men would be sufficient to take a place in the annals of military achievements. No one who has not traveled in the East can form a conception of the badness of the mountain tracks and the difficulties to be overcome; and at that time, immediately after the terrible rebellion in Yun-Nan, it can have been no easy matter to have fed the army in a country laid desolate and devastated by both sides in what was almost a war of extermination.

The march of these men and the other Chinese armies from Lan-Chou-Fu to the oasis of Hami, a distance of about one thousand miles, a portion across a completely arid and waterless region in the fearful Desert of Gobi, must fill us Englishmen with envy, whose miniature armies are always accompanied by huge and cumbersome baggage-trains that would render feats such as these of the Chinese utterly beyond our powers.

But at the same time it must ever be borne in mind that there is in no part of China at the present moment any force that in a European sense can be called a disciplined army.

I have quoted official reports, written about 1850, on the state of the Luh-Ying, and I will now give the remarks of Baron von Richthofen, written in January, 1872, at Si-Ngan-Fu, where at that date a large number of the army that afterwards marched westwards were gathered together:

"Since my entry into Shen-Si, I have been constantly amongst soldiers and officers. Among the latter there are men of a military turn of mind, who in time of war will do honor to their position. Nor are the soldiers, who are mostly from Ho-Nan and Hu-Nan, made of bad stuff. They have mostly a stout frame, and can stand fatigues remarkably well. But they are not animated by either a military or a patriotic spirit, and the only means to keep a slight discipline among them is the fearful power of capital punishment, which every commander of at least one battalion wields over his own men. It is made use of liberally, and many are the soldiers' heads that are cut off by the executioner.

"Can there be any more forcible illustration of the complete lack of military spirit than this, that the executioner is one of the comrades of the criminal, and receives five hundred cash (about two shillings) for cutting off his head?"

The victories of this Chinese army are not difficult to account for; they are due not to the superior discipline or valor of the troops; it is probable that so far as valor is concerned, the Mahomedan rebels and the forces of Yakub Beg were at least their equals, if not their superiors. But their superiority lay in their arms.

I have already referred to the fact that the very name of Li-Hung-Chang's troops had been sufficient to drive the Hwei-Hwei rebels out of Shen-Si.

Of this event, Baron Richthofen remarks, "The fame of Li-Hung-Chang (or perhaps of his foreign arms) is so great that the rebels withdrew immediately on the approach of his troops, never engaging in a fight with them. No one of the soldiers of that army whom I met has ever seen a rebel. The whole province of Shen-Si was at once cleared of organized rebels without bloodshed, none but stragglers remaining. The main body retired into Kan-Suh. . . . The province will remain in a peaceful condition as long as it is occupied by foreign armed troops."

The best armed and organized troops with which the Chinese army, with their Berdan rifles and Krupp guns, had to contend were those of Yakub Beg. The army of that potentate is thus described by Mr. Boulger: "The army of the Amir was divided into two bodies, the jigit or horse-soldier, and the sarbaz or foot-soldier. The jigits were

armed with a long single-barreled gun and a sabre. The sarbaz, among whom are included the artillery, had gone through some regular drill and training. He was a regular soldier, and might be trusted in defense of his country up to a certain point. It is probable that Yakub Beg never had 20,000 trustworthy soldiers in his army."

When we consider the moral effect alone that must be produced on the mind of ignorant and superstitious people by the vague knowledge that their foes are armed with foreign weapons, of which they have the most exaggerated ideas, it will readily be believed that it was neither superior courage, discipline, nor generalship that gave such complete victory to the Chinese, but that these were due to superior arms and superior numbers directed by an all-powerful will at the capital,—a will which, though it may be slow in making itself felt, is nevertheless felt and obeyed throughout the length and breadth of the Chinese Empire.

But this paper will hardly be complete without some consideration of the future; I have no intention, however, of clothing myself in the mantle of a prophet, but by some examination of the past I hope that it may be possible to lay some slight basis for speculation.

And at the outset we cannot but be appalled by the magnitude of the task. We have here a nation that is spread over an area the very vastness of which is itself difficult to appreciate, and its numbers even in proportion to the territory are still immense. This nation possesses an authentic political history for four thousand two hundred years, and even at the time when our forefathers knew no other clothing than blue paint it was almost the nation of to-day.

This nation possesses no landed aristocracy, but you may find men in it who can trace an authentic pedigree for two thousand years, and it boasts, what no Western nation can claim in so high a degree, an aristocracy of intellect.

This great Empire has now lived through long ages of varied fortune, and it would be surprising, indeed, if a people that had survived so many and such great vicissitudes, had been conquered many times, and had each time risen superior to defeat, had absorbed one race of conquerors and had driven out another, did not possess some characteristic that would mark it as a peculiar people, and this characteristic is the individuality of the race. And it seems to me that it is only by an inquiry into the causes of this individuality, and of the long duration and stability of the Chinese Empire, that we can hope to speculate on its future as a military power.

When first the Chinese nation became known to the West, its stability was attributed to the doctrine of filial piety, which was and is universally accepted by the people.

It has also been ascribed to the geographical isolation of the Empire and to the peculiar nature of the Chinese written language.

Another theory is that it is due to the assertion of a divine harmony in the universe, which has been throughout all ages the fundamental and ruling idea in every Chinaman's principles of action.

Mr. Meadows considers that the real causes of the unequaled duration and constant increase of the Chinese people, as one and the same nation, consist of three doctrines, together with an institution by means of which the efficient performance of the work prescribed by two of these doctrines is attained, and by which a living practical belief in all three is maintained in the mind of the nation.

The doctrines are—

I. That the nation must be governed by moral agency in preference to physical force.

II. That the services of the wisest and ablest men in the nation are indispensable to good government.

III. That the people have the right to depose a sovereign who, either from active wickedness or vicious indolence, gives cause to oppressive and tyrannical rule.

The institution is—

The system of public service competitive examinations.

Mr. Meadows observes:

"In every case the institution of public service examinations (which have long been strictly competitive) is the cause of the continued duration of the Chinese nation; it is that which preserves the other causes and gives efficacy to their operation."

It appears to me that the first doctrine enumerated by Mr. Meadows embodies the theory of the divine harmony,—a theory that may perhaps bring a smile to the unthinking.

But those who have seen and felt that the Chinese character and ways of thought are not as ours are will pause before condemning any theory, however insufficient it may seem, to account for the marvelous history we are now contemplating.

With regard to competitive examination, however, it must not be forgotten that the system was only introduced in the comparatively modern period of the Tang dynasty (circ. 700 A.D.).

The nation had then already existed three thousand years, it was even then practically the nation of to-day, and surely, therefore, there must be something deeper than the examination system to account for this marvelous individuality.

The formation of the character of individuals is a subject that has scarcely, if at all, been studied; the formation of the character of a nation must therefore be a gigantic task. Deeply interesting though it would be, the inquiry into the formation of the Chinese character is one that no one would lightly undertake, and I shall certainly not venture to discuss it here. I shall content myself with believing that the individuality of the Chinese race has developed itself with the

nation, and that the roots of it lie buried among the crumbling ruins of dynasties which may even yet, like the mounds of Nineveh, some day afford startling revelations for the diligent searcher into the records of the past.

But even though we may doubt that competitive examination is the cause of the continued duration of the nation, there can be but little question that the three doctrines already enunciated must have contributed to it in a large degree, even if they are not, as I am inclined to think they are, the sole cause of it. Nor can it be questioned that the system of competitive examination assists materially to maintain the work prescribed by these doctrines.

Mr. Meadows observes:

"The desire of raising himself above his fellow-creatures is one of the strongest passions of man's nature; hence, if even a probability of advancement is held out to him as soon as he shall be worthy of it, his exertions are immediately increased; while, if the uncertainty be there, it is no exaggeration to say that they are doubled and trebled."

It is this desire of distinguishing himself that is the passion acted on systematically by the Chinese polity.

In China the only posts of distinction are those of Government servants. The only road to them is by competitive examination, and the literary graduate, even though he only be an expectant for official service, and however poor he may be, is much more respected, and really possesses a greater practical influence, than the rich but unlearned merchant or landed proprietor; and thus does the State secure the services of the wisest and ablest men, and hence the only class that has to be repressed by the Government officials is nearly entirely composed of men of mean ability.

Having thus, in as few words as possible, stated what may be the cause of the long stability of the Chinese nation, a question at once presents itself to us, and one by no means easy of solution.

For those who have studied Chinese history, and have traced backwards the line of dynasties through the dim twilight of the earliest records till they have at length lost them in the darkness of fabled antiquity,—those who have marveled at the gigantic works and the advanced knowledge of the Chinese of long ago, who have been startled by the fact that a reference to the culmination of stars shows that the Chinese historical classic must have been written at least four thousand years since, and who have been dazzled with the splendor of some epochs in Chinese history,—cannot fail to be lost in sorrowful amazement at the stagnation of the last few centuries, and to ask themselves what it is that has arrested in its growth the civilization of this wondrous people.

It may seem rash to attempt a reply to such a question, but as the prospects of the future depend upon it, and as each new theory may

contain some grain of truth, I venture to give my opinion. And I think that this very system of competitive examination, although it has tended to perpetuate the nation, has nevertheless tended to perpetuate it in an unchanging condition, and has materially contributed to the stagnation which forces itself upon our attention as one of the most marvelous facts of history.

There is now no time to discuss this matter, but I would briefly point out, in the first place, that the subjects of these examinations are not such as to produce originality of ideas, but that they rather tend to force the whole national mind into one groove of thought, and that a very narrow one.

Thus, without originality and devoid as the Chinese are of imagination, it is not difficult to understand why they should have ceased to advance.

Further, the very fact that all the talent of the country is absorbed in the service of the State must tend to hinder the advancement of the nation. For even in progressive countries a system which would divert from private enterprise all those who help to make the country great would have lamentable results. How much more must this be the case in one where enterprise of any kind is almost unknown, and which has, as it were, been asleep for centuries! In Western States honor, fame, and dignities attend those who succeed, no matter in what walk of life; but in China none but the officials can hope for any of these. If we look back at the history of our civilization, we find that all the great strides in science and nearly all the greatest works of literature and art have been due to private individuals. The discovery of America, the establishment of the overland route to India by Waghorn, the Suez Canal, and newspaper correspondence are but a few instances; and in this country does not the Government always look with suspicion on any measure that would appear likely to interfere with or retard individual effort?

It may seem that I have been somewhat deviating from my subject; but I think it will be admitted that the considerations into which I have entered were necessary for the due prosecution of the great inquiry, How far is China likely to take her place in the future in the rank of great military nations?

This inquiry naturally divides itself into the questions:

1. What material is there in China for making soldiers?
2. What for the production of officers? And
3. Without altering the fundamental principles of Chinese polity, what changes in the details of the system are necessary to raise from the Chinese people the generals and subordinate officers necessary?

The answer to the question, What material is there in China for making good private soldiers? is easy.

The Chinese, especially those of the north, are a fine people physi-

cally; they are hardy and enduring, frugal and temperate; they can undergo great fatigues on a small amount of food, and will support great privations without complaint. They are law-abiding, docile, and obedient to authority; and if the discipline in their armies is at present lax, the history of Gordon's force shows us what it might be if the soldiers were properly paid, properly officered, and properly looked after.

In his history of the "Ever-Victorious Army," the author writes: "Sometimes a regiment would be a whole month without any one in it deserving punishment, and the relationship between the men and the officers was on the whole affectionate. The Chinese were, as a rule, very orderly, and, as drunkenness was unknown amongst them, the services of the provost-marshal rarely came into use, except after a capture, when the desire to loot was a temptation to absence from the ranks."

The other qualification requisite for a soldier is courage, and although I would at the outset state that, owing to his education and surroundings, I do not believe that the Chinese possess any heroic feeling of devotion, yet I think there can be no reason for the assumption that has been made that they are a cowardly race.

I think, on the contrary, with Mr. Meadows, that—

"The Chinese possess as much of constitutional or animal courage as any other specimens of the human race, but of that courage which is based on a determination of the mind to display intrepidity they are nationally wanting, simply because their own opinions and institutions offer little inducement to their minds to come to any such determination."[7]

In England we are taught to regard bravery and warlike talents as among the highest of human qualities. In China, on the contrary, the national education tends rather to reduce the military virtues to a low place.

There was, no doubt, at one time a prevalent belief in the West that the Chinese were a cowardly people, and the ease with which English troops beat Chinese after a mere show of resistance has been adduced as a proof of it.

A little consideration, however, will show the error of the assumption.

The English were armed with weapons that they knew were infinitely superior to those of the Chinese; they had been brought up to look upon military valor as a very high virtue; they knew that disgrace followed cowardice, and that at least honor was the reward of valor. They knew that there were pensions for themselves if disabled, and for their widows in case of death; above all, they had confidence in the skill of their leaders and the courage of their officers.

[7] "Desultory Notes." By T. T. Meadows.

To the Chinese, on the other hand, all these incentives were wanting. They not only knew that the foreign arms were deadly, but they had the most exaggerated ideas of their power and effects. They had passed their lives in a society where military virtues were regarded as of little moment, and where military officers were looked upon with little better than contempt. With them a panic and even a headlong flight by no means brought disgrace, and they were well aware that the highest courage would meet with little, if any, reward. They were miserably paid, often not paid at all, and pensions are quite unknown. Finally, they had every reason to know that their generals were incompetent, and no reason to suppose their officers were animated by any higher spirit than themselves.

Under these circumstances, is it reasonable to accuse the Chinese of want of courage because they did not offer more serious resistance to our troops?

There are, however, instances on record that fully corroborate what I have stated.

Wilson, in his "Ever-Victorious Army," states that—

"As sappers the Chinese are equal to any Europeans. They work well, are quite cool, from their apathetic nature, and however great their losses do not become restless under fire, like Europeans."

It is universally acknowledged that, even with the best-disciplined soldiers, it is a mark of the highest training when troops can be brought to assault a second time immediately after a repulse; but at the siege of Tai-Tsan, after the storming-party had already once been driven from the breach, it was assaulted a second time within half an hour, and carried; and at Kin-Tang three successive assaults were made, which were desperately resisted by the rebels.

Another instance is quoted by the same author, who writes:

"Four rebel horsemen rode past the steamer in a shower of bullets, and when one of them was struck off his steed the others waited for him and carried him off,—a fine instance of Chinese courage and fidelity."

Instances could be multiplied to an almost unlimited extent, and the opinion of many other thinking men might be brought forward. But I believe that I have said enough to show that the Chinese, if properly trained, properly armed, and properly led by officers in whom they placed confidence, would certainly furnish material for admirable soldiers.

But, on the other hand, it is my opinion that, for two very sufficient reasons, the Chinese will not make good officers.

The first is, that the Chinese are, as a nation, entirely without observation and altogether devoid of originality. A Chinaman can learn anything, but he can conceive nothing; he may readily be taught any number of the most complicated military manœuvres, but, place him

in a position slightly different from that in which he has learned, and he will be found incapable of conceiving any modification to suit the altered circumstances.

Prompt action, readiness of resource, ability to seize on the smallest advantage or to neutralize a misfortune,—these are the qualities that make a soldier, and these are the qualities that cannot coexist with the Chinese want of originality.

The other reason is that to which I have already alluded, the national want of that courage which is based on a determination of the mind to display intrepidity,—the national want of any feeling akin to self-sacrifice in the cause of duty.

If we look at the history of the world, we shall find that two mighty influences have been at work to induce such a feeling as that of self-sacrifice; the first has been religion, and the second the desire so strongly implanted in the human breast of gaining the esteem of fellow-man. Indeed, I doubt if I shall be guilty of exaggeration if I assert that all great, virtuous, and noble actions have been prompted by one or the other.

When, therefore, we bear in mind that, at all events so far as military virtues are concerned, both of these influences are completely wanting to a Chinaman, we must be driven to the conclusion that we shall not find these military virtues in China. This leads us to the conclusion of the paper, the considerations of the future possibilities, and, as I have already pointed out what are in my humble estimation the wants in the Chinese system, I have to a certain extent indicated the remedies, and these would be—

First, the admission of military men to positions of honor and esteem at present only open to civilian literati.

Secondly, an alteration in the subjects of the competitive examinations.

With regard to the first, I will quote the words of Mandeville, who, in writing of the Romans, said:

"But if we would know what made them excel in fortitude, courage, and magnanimity, we must cast our eyes on the pomp of their triumphs, the magnificence of their monuments and arches, their trophies, statues, and inscriptions, the variety of their military crowns, their honors decreed to the dead, public encomiums on the living, and other imaginary rewards they bestowed on men of merit, and we shall find that what carried so many of them to the utmost pitch of self-denial was nothing but their policy of making use of the most effectual means that human pride could be flattered with."

With regard to the second, however, it is held by some whose opinions are entitled to the highest respect that from the very fact that the subjects of the examinations have been for centuries the revered ancient books, and these alone, so the national mind has been

moulded in uniformity; that it is owing to this, and this alone, that the same ideas have pervaded the whole Chinese nation; that it is this that has produced the marked individuality of the race, and has allowed it to remain homogeneous and united amid the rise and fall of so many empires.

I have little doubt that if the exact sciences were introduced into the Chinese curriculum, in course of time originality would be developed, and China might produce a Tyndall or a Newton. It is to be believed that if the military examinations were something better than the childish exercises now in vogue, a race of officers might appear worthy of a great nation; but then the momentous question arises,—a question that must ere now have presented itself with terrible force to some minds in China,—What would be the effect of scientific education and its necessary concomitant free thought? Would it be possible any longer to keep three hundred millions of people united? would not the spirit of change or revolution be let loose, and, bursting the floodgates that so long had held it back, sweep away the landmarks of centuries, tear up the roots of existing institutions, and leave China, even as Assyria, Egypt, and Babylon, a mystery to future generations?

BITS OF ARMY ETYMOLOGY.

V.

DIGGING away at the dictionaries we discover the French form *pelote*, meaning a ball, and so extending to a group, passing into military parlance as *platoon*, which would thus seem to be related to the verb *pelt*.

But in the noun *pelt* we recognize our old friends the *peltasts* behind their shields of skin, who with the hoplites do up so many parasangs of Greek history. They are also related to the grave chaplain in his *surplice*, to the gay lady in her *pelisse*, to the *peltry* of the hunter, and to the *pillion* upon which some of our grandmothers rode.

This stock of words is said to originate, like *plus*, in a root meaning *plentifulness*, in this case of hair, as *polis* is a place of much people, and *plebs* is the many, the *oi polloi*.

During the Rebellion most every one had some pet convenience to which he clung with a secretive pertinacity that eluded all provost-guards and inspector-generals, who so ruthlessly tossed out upon the roadside from toiling wagon-trains the unabridged dictionaries, brass fenders, and rocking-chair of the provident volunteer. With one it was a bath-tub, with another a case of—cherry pectoral, and with the present investigator a pillow, upon which his head reposed with perennial comfort, no matter whether ammunition or rations were behind, or the enemy traveled in front or rear, and they spent a generous half of the time in the latter position, making our stay upon tropical soil of so transitory a nature that we have longed ever since to get back there and learn something about the country.

It was not, however, the first time that military men have been known to accomplish in one day coming home what took a week going out. The fact is, moving over the road a second time reveals a painful lack of novelty in the surroundings, and an utter absence of temptation to linger by the way. Besides, every man must labor according to his idiosyncrasies. Some generals, possessed of a poor memory and of a restless curiosity, were always forgetting those things which were behind and pressing forward to those which were before, like our brother-soldier, the good apostle Paul, while others of a reflective disposition and strong local attachments dragged

"At each remove a lengthening chain,"

and were never so happy as when scurrying back to their base.

Our service lay largely in this latter direction, but in victory, when it was expected, we rejoiced with our pillow, and in defeat, when it came, regularly as the ague, that pillow was our consolation, and despite its possible *depilatory* effect, we were thankful that, contrary to linguistic propriety, it was filled with honest old New England abolition geese-feathers rather than any aristocratic pro-slavery hair, or the gray moss that has since become its economical substitute. And upon that hardy lieutenant who was wont to sleep with a nice tri-cornered billet of wood under the top of his blanket, taking particular care to turn any chance knot uppermost, we looked as Sardanapalus might have looked upon St. Simon Stylites.

We doubt, furthermore, if Japanese civilization ever gets a fair start until they do away with their wooden head-rests, which compel an ossification of idea and custom wholly inconsistent with true progress.

The issue of pillow-cases to the soldier was a timely concession to the spirit of an age which demands that its beef-cattle be brought to market upon parlor-cars, and would solace the preprandial detention of its turtle with spring mattresses. Now let feathers as aforesaid, five pounds to the man, be placed upon the supply list, at cost price with ten per cent. additional, and we can wait in easy composure the issue of the new regulations and the advent of compulsory retirement.

The *Cincinnati* are the curly-haired ones, not so much with reference to either the cityor society of that name as to the original dictator, whose locks as well as character were decidedly kinky, and were so declared by his name.

Cæsarism is not particularly rampant in Jersey, contracted from Cæsar's ey or island, as it ought to be, and, looking from the Senate gallery upon the shining heads below, the dignitaries of that chamber would not seem to be troubled by the disease in its primitive signification of hairy.

While on this subject we note that *wig* is a contraction of *periwig*, and this a corruption of *peruke*. The same root is seen in *plush* and the Latin form *pilus*, and *villus* with the same meaning of hairy presents itself in English as *velvet*, appearing also in *wool*. Clouds are conceived of as fleeces, and hence we have *welkin* as the place of this celestial wool. It has been supposed that this root asserts itself in *barbarous*, applied to outsiders who depend for cover upon their own hair, or skins of the animals they kill, rather than upon Worth or Brooks Bros. So finally we come to that old soldier *Bellerophon*, or the cloud-killer, and find that he too was a solar hero, as philology with "a scientific use of the imagination" will in the far hereafter demonstrate General Pillow to be. It is thus that the matter and mind of our personal selves is beautifully exhaled into "the infinite azure of the past," as sayeth the poet Tyndal, making man and mist the termini of a series that includes such possibilities as the penguin and the Parthenon, La

Brinvilliers, no better than she should be at seven years of age, and Anne of Austria, a mother only after twenty-two years of wedlock.

If the reader is somewhat surprised at the localities in which we bring up on our devious way through the dictionaries, he can right himself with a look at his breakfast-table, where the potato, a lingual deposit of Hayti, follows close upon the cantaloupe, named from an Italian castle. Our whole desire is so to disguise the acridity of bare facts that they shall become pleasant as *peppermints*, a word related in its latter part to *Prometheus*, another old soldier, who first made fire a portable convenience, and should be reverenced accordingly by the Ordnance Corps. Prometheus seems to be a personification of the fire-churn, where one stick whirling upon another brings forth a blaze, as milk so treated brings forth butter. The flowers also of the *mint* appear in whorls, and furnish a correspondent name. Prometheus therefore, like Bellerophon, has the same scientific vanishing-point in the primeval fire-mist.

Our monthly *stipend* is literally that which is pressed down and weighed out, and is connected with *step*, *stamp*, *stop*, *stump*, and *stubble*, according to the various degrees by which the Second Auditor increases the demnition total of his usefulness and our contributions to the "statement of differences," that interesting financial serial which a paternal treasury issues gratis to line and staff alike.

From statistics we turn with pleasure to come into the garden with Maud and note that her *jonquils* and *junkets* belong also to *junk*, in view of the rush-like leaves of the one and the rushes upon which it was customary to bring the other to market.

Under the shade of the fruit-trees we will stop long enough to see that these names are many of them locals, like *peach* from *Persia*, whence, also, *puss*, *cherry* from *Cerasus*, *currant* from *Corinth*, *chestnut* from *Castanea*, whence *castanets*, for resemblance in form, *quince* from *Cydon*, and *damson* from *Damascus*. Orange and lemon are from Eastern roots, and *date* is akin to *digit* and *toe*.

Apricot, *kitchen*, and *cockney* are all assigned to the root seen in *cook*, the first in the sense of early-ripe, and the last as a familiar of the second.

Of apple, pear, plum, and prune we can only remark that they are cognate with pod, in so far at least as each contains a p, but whether this is an accident or trace of common origin the wise do not say.

Among other curious things there is a theory of speech which maintains that its labial elements are the natural and necessary expression of whatever possesses lateral extent, like the lips, while lingual elements similarly correspond to length in the opposite direction, that of the tongue, and verticality finds utterance in gutturals. The two first combine to denote surface, while the three unite as an exponent of solidness and interiority. Therefore beauty begins with a labial but goodness

with a guttural. Illustrations, however, are dangerous, for there is an inwardness about a bee in full operation which conflicts with the theory, while nothing can be more superficial than a jug, unless it be a giggle.

But facts never do fit theories, of course, for the first get knocked out of all proper form in this pugnacious world, so too much ought not to be expected on that score. And this particular theory is intended by its owner to be applied to language in its youthful innocence, before it was degraded and soiled by all that it has been made to convey since Abel was elected and Cain counted him out. A word starts on its journey like a boy on an Independence picnic, with mother's coat and father's nose plain to all beholders; but long before nightfall double rations of berry-pie and a row with Bill Smart about jack-knives have left no trace whatever of the morning's harmonies. Nor in such garbage as floats out of New York Bay upon the theory of a flood-tide would any one see the vegetable glory of "Highland Farm," or the horses exultant to whom were appended, perhaps, the amateur Wellers (père) of the coach club. The belles of Jersey, done up after *Harper's Bazar*, are anything but exact copies of those whose privilege it was to scatter flowers before Washington, and as little do most words resemble their grandmothers. So we will let our theory stand on its two legs of beauty and goodness. It is only low products of life, like the centipede, that require more. The conclusion, therefore, is that the labiality visible in apple, pear, plum, and prune prove the lip to have been the point whence the applied morsel taught the sense of its existence and drew the form for its name. It was not without reason that the great novelist sought to indicate in the intense labialism of "prunes, prism, and propriety" that virtue that never gets beneath the surface, and consists solely of appearance.

We return to our mutton by remarking that, though we have heretofore relieved Lady Jane of any responsibility for the demijohn, it appears that *Joan*, her namesake of the kitchen, must confess to *jug*, though how the wench became the vessel is obscure, unless by some such process as produced a toby of ale. *Akimbo* illustrates the use of two roots of the same signification, *cam* and *bow*, one being added as the meaning of the other was forgotten, just as Jack now talks about the *jolly*-boat, which is a corruption of *yawl*-boat, and no more noted for good nature than naval furniture generally. *Medius*, our middle, has been curiously specialized into *mitten*, or half-glove, and *mullion*, as the middle pier of a window.

Accoutrements, as the things kept in *custody*, apply to the decorations of the priest no less than to those of the soldier, but this is only another of the numerous resemblances that link the two professions.

Candidates for Creedmoor will know that *aim* is to *estimate*, rather than to shut one or both eyes. Here, however, the great law of evolution must make itself felt, and as the flounder finally gets each eye on

the same side of his face because they are needed there, and as the fish of the Mammoth Cave lose both eyes from the want of exercise of either, so it is to be feared that the constant and brisk competition for a summer on Long Island Sound will develop a race of one-eyed marksmen in the army, either by the suppression of the organ not used or its gradual transfer to the firing side. The champions should be watched for symptoms of this new and beautiful illustration of the "survival of the fittest," or, as ambi-dexterity is to be a feature of the coming man, he will probably be expected to also number ambi-opy among his virtues, and to score a five every time, either by shutting both eyes or keeping both open.

To get back to our army Nimrods, who would doubtless tolerate a bit of philology that had a right gamy odor, we report a root seen in *ferus*, whence our *ferocious*, which has the general sense of wild, and is differentiated into both *bear* and *deer*, while *antelope* denotes the bright-eyed animal, and the *elk* is a brute *alcides*, the strong. Underlying *beast* is the signification of *being*, and of *brute* that of weight, as seen in *barium*, the metal, so named from its heaviness.

Of fishes the *trout* is the gnawer, a sort of riparian *troglodyte*, the *salmon* is the leaper, dace the *darter*, and bass is a probable corruption of *perch*, which refers to duskiness of color, somewhat as *dun* gave the diminutive form *donkey*. The *porpoise* is the *pig-fish*, the *halibut* the *holy* fish, as special *holiday* diet. For the benefit of scrupulous souls, to whom Lent comes laden with difficulty, we present the decision of that judicious prelate who quieted the fears of a princess of France as to the distinction between fish and flesh by directing that a bird, of which that lady was very fond, should be dressed and then pricked over a very cold silver dish. If the gravy of the animal congealed within a quarter of an hour it was to be accounted flesh, if the gravy remained in an oily state, the creature could be eaten with a clear conscience. This might do for theology, but would hardly be considered a scientific line of demarkation, though it has the merit of an experimental basis. Still Dr. Tanner, it must be admitted, has furnished all sensitive inquirers with a solution of the problem about which there can be no doubt, however much there may be of emesis.

The *turbot* is the *top*-like fish, *turbo*, and the *sole* belongs to the same flat variety. As for the pompano, the most delicious of all, we must refer the reader to our remarks upon apples and pears, and, should they be unsatisfactory, to the author of "Beautiful Snow."

Along the *picket*-line can be arranged a fine group in proof that etymology, like misery, makes strange bedfellows. Here we can go all the way from a *pike* to a *pine*-tree, from *pitch* to *pickles*, from a *woodpecker* to a *pickerel*, and from a *pickaxe* to a *pitcher*, still following the notion of sharpness, primary or derived, even to the *beak* of the latter utensil.

With like meaning, but from another quarter, we get *spike*, *spine*, *spinach*, and *spinet*, as seen in the pointed leaves of the herb and the stick with which the instrument was played.

But the *spinning*-wheel, the *spinster*, and the *spider*, with a *span* of horses, as opposed to tandem, a *spasm* and a *paddle*, which has lost an initial *s*, form still another group, related through the notion of that which draws out or is extended.

We can very profitably devote some minutes to the *butcher* for a few "choice cuts" in philology, however unsatisfactory his steaks may be. Once he killed *bucks* only, and bucks, to go still farther back, were simply the eaters. So of all the trees bearing edible fruit we know one only as *beech*, and here belongs *book*, once made of beechen boards, and *buck*wheat is *beech*wheat, named from the formal resemblance of both grain and nut.

Wheat is only one of many grains to which the conception of *whiteness* might be applied, as *board* is a particular instance of *breadth*.

All through language runs this deposit of sediment as the general meaning is evaporated. The *acre* was formerly any field, and akin to it was *acorn*, but one has clarified into a fixed portion of land, and the other into the fruit of a particular tree instead of that of the field. A *furrow's* length has become the *furlong*. Any quantity of liquid laid away was a *gill*, the root being seen in *cell* and *conceal*, and finally amplified into *gallon*. What was *packed* settled into a *peck*, and a *box-full* into *bushel*, and *box* itself originated in a term meaning the dense, thick growth of the wood so used. Hence *bushing* the vent was to *box* it anew, but the bush that no good wine needs comes from another root. So *fur* is akin to *fodder*, through the notion of protection extended into nourishment, and *firkin* and *farthing* have been promoted from *fourth* parts to wholes.

Other words beginning with the individual have spread into classes, like Huguenot and Wesleyan, fiacre and hansom, spencer and tramway.

Once more establishing our headquarters in the saddle, we note of *cantle* that it is the corner or edge, while *canter* is the gait for which the pilgrims were famous as they moved down the *Canterbury* road to the wonders of the shrine of Thomas à Becket.

A *cornet* of horse was first a trumpeter, *cornu*, then a troop with the trumpeter, and finally an officer with the troop. The *bridle* was a *braid* of rope, and the latter word is also seen in *stirrup* or the mounting *rope*.

Martingale is an attachment handed down from the *Martingaux*, or the belles of *Martigues*, in Provence, who trussed up their stockings, as the health-reform ladies do now, and thus originated the strap *à la martingale*. The pompon, one of the multifarious styles which have distinguished the hat and depleted the pocket of army men, is an ornamental dribble out of *pomp*. Though the cavalry color would natu-

rally suggest a *pumpkin* as the origin of this decoration, that vegetable is rather akin to *pepsin*, of which it stands so much in need when presented as pie. Primarily, pumpkin was the *cooked* thing, and *dyspepsia* and *kitchen* are cognate terms, properly enough. Thus in the slow flight of ages the simious vegetarian whom science offers as our forefather, by feeding himself liberally upon stewed pumpkin, duly attained to *pâté de foie gras* and philology.

In the French phrase just quoted there is to be discovered a relation between figs and liver, the goose being fed upon the former to the extent of so fattening the latter that it received the name, *foie*, of the fruit, which reminds us of the connection we have somewhere seen between cats and clover. This grass is fertilized mainly by bees in their honey-hunts, and bees suffer greatly from the depredations of mice, at which point the cat appears to cheapen the market-price of the nectar. This, however, refers to the country cat, and can be urged as no plea in favor of the metropolitan article.

The connection between all forms of life, from Congress to the Colorado beetle, is a very subtile one, with consequences just beginning to develop themselves. The abolition of slavery was certainly to be desired, but famine and failure are no unlikely results. There is hardly a negro in the South that does not now own a musket in a sufficiently serviceable condition to do great damage to the birds that make their home during the winter in the tropical woods and swamps. All through the country they may be found, boy and man, popping away at anything and everything that flies, exercising to the uttermost their newly-won privilege of bearing fire-arms. The Southern forests, once so full of song, are thus getting to be as silent and lonely as those of New England. The inroads so made upon the feathered tribes, charged from of old with the police of our fields, are now manifesting themselves in the appearance of all sorts of hitherto unknown plagues to farm and garden. We are a liberty-loving people, no doubt, but it is to be hoped that bugs and worms of every kind may so restrict our bills of fare that we shall be compelled to tax sportsmen without reference to age, sex, or previous condition of servitude, especially of the amateur sort, not only for the destruction they intend, but for the noise they make, until bird-killers and liquor-sellers sink to the same level in the public disapprobation. If the Constitution gives the right to bear arms, it says nothing about firing them off, and strict construction is sound policy for both church and state. Reserving a sixteenth amendment for the benefit of Sorosis, let the nation by another and final one guarantee life, liberty, and the pursuit of happiness to the bob-o-link. Then shall the cherry and the peach, the squash and the potato, return to the lands from which they have been driven, and

"The nightingale sing there all the day long."

H. W. C.

THE ENGLISH IN AFGHANISTAN.

ALTHOUGH the relations of the English government of India with its turbulent and troublesome Western neighbors do not immediately concern the dwellers in this hemisphere, it is impossible to regard with indifference the struggles incidental to the solution of so great a political problem as the domination of England over Russia in Central Asia.

India has ceased for many years to be a factor of pecuniary strength in her connection with Great Britain. The pagoda-tree has long since been stripped of its fruit, and the rupee-plant is not perennial in its products. But there is a political prestige in the possession of a vast and populous territory, and a moral obligation is imposed upon the European possessors to protect and civilize the millions they have displaced. Further, an insular people can only put themselves on a level with continental powers by the acquisition and retention of remote lands with which the communication is facile and uninterrupted. Hence, England has a deep interest in maintaining the integrity of India and her other colonies, *coute qu'il coute.*

That Russia has designs upon India is a theory dating as far back as the reign of the Emperor Paul, who was in accord with the First Napoleon respecting the destruction of the English position in Hindostan. All northern nations have a tendency towards a southerly gravitation. Warmth of climate and fertility of production are strong inducements to an abandonment of cold, cheerless, and comparatively barren wastes. Thus, Russia has been steadily advancing her frontier until she has reached the confines of Turkey, the borders of Persia, the fringe of Turkestan, and the vicinity of Afghanistan. It is in her progress towards a footing in the last-named country that England finds cause of alarm. The absolute invasion of India by Russia is not so much to be apprehended as her presence in the neighborhood of Hindostan. It would be a perpetual thorn in the side of England, a constant incitement to intrigue and disturbance in the heart of the country, and a source of alarm among the peaceful and loyal subjects of Queen Victoria. Every effort must therefore be made to keep Russia at a distance.

To possess a good stand-point for her ultimate operations easterly, Russia must occupy Herat. That city, on the western extremity of

Afghanistan, no longer enjoys the prominence which it boasted for magnificence in the thirteenth and fourteenth centuries, but it has long been regarded politically as the "key to India." Situated in the heart of a wonderfully fertile valley, it affords the means of sustenance to any number of troops, and the nature of the roads thence to the Himalaya chain would enable a tolerably large army to move with facility to the very base of the mountains and the sandy territory of Beloochistan. Of this fact England is fully aware, and she is, therefore, equally desirous of the occupation of the town. So far back as 1838 the Persians, instigated by Russia,—who never appears prominently when she can make a cat's-paw of her feeble neighbors,—laid siege to Herat. The operations were not conducted with much skill, but the Afghans were making a miserable defense of their crumbling walls, when a young English artillerist appeared upon the scene. Eldred Pottinger, the subaltern, was merely traveling for his own pleasure, but, quickly apprehensive of the importance of preserving Herat to the Afghans, he offered his services to compel the Persians to raise the siege, and by dint of great energy he ultimately succeeded. He caused the damage done by the Russo-Persian artillery to be repaired, placed the Afghan guns in better positions, and by his gallant example and professional skill infused courage and hope into the bosom of the besieged. Russia withdrew her aid, and the Persian force retreated.

Contemporaneously with this event another subaltern, named Alexander Burnes, had discovered the presence of a Russian emissary at Cabul who was exercising a pernicious influence over the mind of Dost Mahomed, the ruler *de facto*. The combined occurrences being reported to the English government, the Cabinet of St. James was ruffled and the Council of the Governor-General of India alarmed. It was at once resolved to send an army into Afghanistan and displace Dost Mahomed, substituting for him a former sovereign, who had been residing as an exile for many years in India, a pensioner on the bounty of the British. The task was costly, but not very difficult. What the troops of Alexander the Great could accomplish was not impossible to an Anglo-Indian force. Cabul and Candahar were occupied with facility; Ghuzni was stormed and taken, and the three towns with other outposts were held by garrisons of English soldiers and native Sepoys for two years. The communication with India was maintained by subsidizing the tribes in the intermediate country, and the Afghans, of Candahar at least, were well content to exchange their independence for a profitable traffic with the British army. But blind confidence wrecked the arrangement. Believing that the country was permanently tranquillized, and that nothing was to be apprehended if the garrisons were reduced and the subvention of the tribes discontinued, the government changed its policy, and the most fatal results ensued. The Afghans rose upon the diminished force, the British envoy was treacherously

assassinated, and the garrison of Cabul was put to the sword as it attempted to march through the passes in the depth of winter. Aroused to vengeance, the British government sent a second army into Afghanistan, and after effecting a certain amount of destruction at Cabul and levying contributions upon the people the whole force evacuated the country.

Thirty years passed away. In the mean while the Punjaub had been conquered by the British and annexed to the Indian Empire, thereby strengthening the northwest frontier; seven millions of Sikhs became loyal subjects, many thousands turning their swords into plowshares, and friendly relations were cultivated with the governing Ameer of Cabul. But a disputed succession induced the Ameer in 1873, or thereabouts, to seek the aid and intervention of the English. In an evil hour the Ameer was listened to. At first it was deemed sufficient to supply him with money, arms, and ammunition, and the old game of establishing a representative British minister at Cabul was played. An embassy was dispatched to the court. Russian diplomacy was soon again at work, and a delegate from St. Petersburg was entertained to the exclusion of the English officer. Ultimately, however, the government of India succeeded in obtaining the dismissal of the Russian and the admission of its own deputy, and Major Cavagnari, a soldier of rare attainments and remarkable intrepidity, held the post for a few weeks. Some Afghan regiments rising in revolt against the Ameer, the British envoy, his staff and escort were savagely murdered. The Ameer fled to India, avowing (falsely, however, as it turned out) his innocent helplessness, and for the third time a large force was dispatched to Cabul and Candahar to restore him to authority and hold the country in his name.

We have now reached the present year. Believing that a chieftain had been securely placed in the *musnad* to the satisfaction of the people at large, the British army, which had given several proofs of its prowess in isolated combat with disaffected Sirdars, now prepared to leave the country, when the news arrived that a force of three thousand men, including one European regiment and a detachment of artillery, the rest being Sepoy regiments, under a General Burrows, had been attacked on the banks of the Helmand, west of Candahar, by a very superior force of Afghans and Heraters, and nearly annihilated, the proportion that had escaped the slaughter retreating to Candahar.

This calamitous and unexpected event, arising from the British interference on behalf of an Ameer who had a powerful rival in the field, induced the general commanding at Cabul to alter his intended route, and, instead of quitting the country by the Khyber and other passes to the east of Cabul, to march at once with his whole force to the relief of Candahar. In the mean time troops were dispatched by the government from Quetta to Beloochistan with the same purpose in view; for

intelligence came from Candahar that the Ameer, Ayoob Khan, who had been victorious over General Burrows, had advanced with thirty-six guns and some thousands of infantry and cavalry to besiege the town, which was in an ill condition for effective resistance. The reinforcements, however, arrived in sufficient time to arrest so terrible a catastrophe as the capture of the city and the massacre of the garrison.

Sir Frederick Roberts, the gallant officer in command of the Cabul troops, immediately attacked Ayoob Khan, forced him to abandon every attempt to besiege Candahar and to retreat. In the battle which followed, General Roberts captured the guns of the Ameer, recovering those which had been lost by Burrows, and restoring confidence and tranquillity in Candahar. It seems to have been a gallant exploit, worthy of the skill and intrepidity which enabled the English to hold Cabul for so many months.

It now becomes a question for the consideration of the British government whether Candahar shall be held at all risks or abandoned to its fate as the *point d'appui* of an opponent of the resident ruler of Cabul. After the experience they have had of the treachery of the Afghans, it would savor of insanity, on the part of the English, to trust their lives and the success of their policy to the apparent friendliness of the people. The Afghan loves his independence, and this consideration, added to his religious antipathy to the Christian, his greed of plunder, his savage cruelty and utter faithlessness, will always make him a dangerous ally under any circumstances, actual or supposed. To hold him to his good behavior, India would have to be drained of her resources in men and money at a time when she is beset with financial difficulty. She learned, in the sad lesson of 1857–58, that she must always keep a large force afoot within the limits of the empire. On the other hand, if Candahar is evacuated and the whole of the British army recalled to India, Herat will be at the mercy of Russia, and her subsequent movements left to the development of time. Be it so. There really seems to be less cause of anxiety on that score on the side of the English than there is assurance of suffering, loss, and political discredit by any further attempts to hold a permanent position in Afghanistan. The late Lord Lawrence, who governed the Punjaub in the hour of England's greatest danger, and was subsequently Governor-General of India, invariably upheld the policy of abstaining from any connection with the Afghans. He thought that the Russophobia was altogether a mistake. The frontier of India is strong by nature; the empire is walled in by lofty mountains, and art could render them impregnable. Every pass could be fortified against invasion. A handful of men and a few guns to rake the pathways would keep a hostile army at bay until its resources were exhausted and its patience worn out. And the expense—for that is a serious

matter in all these arrangements—would be trifling in comparison with what must be incurred in endeavoring to obtain a lodgment at Cabul or Candahar. Meanwhile, the revenues of India would be applied to their legitimate purposes, the people encouraged in the profitable and peaceful arts, and Russia left to endure, as England has unhappily done, all the painful and costly consequences of attempting to coerce the restless, fiery, and independent Afghans, or submit to the sacrifices incidental to a reliance on their fidelity to their engagements and their seeming friendship for foreign invaders. We do not profess to speak authoritatively on the subject. It is a mere shadowing of events that may fill a page in the future history of Central Asia.

J. H. SIDDONS.

WASHINGTON, September, 1880.

EDITORIAL NOTES.

In the schoolbooks of a generation ago there used to be a picture of a wicked boy in an apple-tree, whom an old man below was trying to dislodge by throwing at him bits of turf, which, finding ineffectual, the assailant abandons for the weightier argument of stones, exclaiming, "If turf won't do we'll see what virtue there is in stones." This half-forgotten picture is recalled to mind as we follow the proceedings of the Powers and the Porte. The Powers having hurled at the Porte's devoted head first the Identical Note, then the Collective Note, without effect, now resort to the naval demonstration; which, formidable as it sounds, and impressive as it appears, both in print and in fact, does not seem thus far to have accomplished more than the paper pellets of diplomacy. In fact, the naval demonstration is rapidly becoming the laughing stock of Europe; and the Powers, having succeeded in getting their war ships assembled at Ragusa, are now shrewdly suspected of an ardent desire to get them home again before the proverbial consequence of playing with fire shall make them regret unavailingly that they ever sent them into the Adriatic. The particular point which the Powers are now endeavoring to compass is the cession to Montenegro of a slice of Albania, including the seaport of Dulcigno, which, under the treaty of Berlin, the Porte is bound to make. It is not to be wondered that the Porte moves slowly towards the accomplishment of the required cession. The Albanians are Mussulmans, they desire to remain subjects of the Sultan, and are resolved to defend their territory against the pretensions of Montenegro to the bitter end. This being the state of the case, it is certainly asking a good deal of the Sultan to expect him to actively coerce a loyal section of his subjects into surrendering their country to a hated tribe of an alien race. Meanwhile the naval demonstration is deprived of the moral influence which it is expected to exert by reason of the confessed want of unanimity between the Powers. A fleet or an army exerts moral force only because of its potentiality for the exertion of physical force, and when through any cause this potentiality is suspended or destroyed it becomes a mere pageant, and ceases to inspire dread. Whatever shall be the outcome of the naval masquerading in the Adriatic, the intrigues of Russia in Bulgaria bid fair to light again the flames of war along the Balkans, and not un-

likely to embroil the whole of Europe in a struggle which, whatever its other results, will end forever the Ottoman power north of the Ægean Sea.

THE situation in Afghanistan has not materially changed from what it became with the decisive defeat of Ayoob Khan by General Roberts. The government still leaves unsettled the question of permanent occupation of Candahar, and the sentiment of the British officials in Afghanistan respecting it is much divided. The military officers, as a general thing, oppose it, while the political officers favor it, the line of division apparently indicating that the question is considered by these gentlemen from a personal rather than a patriotic standpoint. Abdul Rahman is still strongly suspected of Russian proclivities by many prominent men in Afghanistan, and is said to be in want of money and unable to obtain credit. Should he succeed in tiding over his difficulties it is probable that all Afghanistan will voluntarily range itself beneath his rule.

THE question whether we shall continue to build ships in the United States or not is now approaching a solution, with a greater danger to the real interests of the country than many suppose. If the admission of English-built ships to registry free of duty shall be conceded, there will be few or none built in our own yards for commercial purposes, although we may, from habit rather than from principle, continue to build naval vessels. If there is no essential difference in the case derived from national dignity or consistency, or from the duty of any country to sustain itself on equal relations with others, why should we not go to England and contract for two armor-plated or turreted vessels to be built on the Clyde? This is a fair illustration of the case, and a single experiment of this sort would refresh the public sentiment of the whole country on this vital subject.

The yards of ordinary shipbuilding were never so much oppressed by competition in the usual vessels of the carrying trade as they are now. It is a subject of astonishment where the vessels come from that throng our ports for petroleum and grain freights, and they are ready to carry on terms that reduce the profits of trans-Atlantic freighting to the minimum. The trade of the world elsewhere must certainly be declining, or rather, probably, a disproportion of trade is now drawn to the United States in consequence of the vast stocks of produce and merchandise gathered in our ports for shipment to Europe. The business so created naturally draws fleets of foreign vessels, but it

should also draw forth a fleet of our own, ready to take at least an equal part in the business and in its profits.

To meet this emergency our misguided fellow-citizens counsel the abandonment of our navigation laws and the opening of our ports to the domestication of shipping from all the world. The foreign owner sells an interest, small or great, to an American citizen, and then his vessel becomes an American vessel, to be substituted for and to exclude the home-built American vessel. The pride of a century of ship-building, conducted on equal terms with other nations at least, disappears at once, and the vessels that carry our flag are not American in fact; they are foreign still, and they denationalize even their owners.

We can scarcely conceive a greater mistake in every aspect of the case than to so wound the national pride, and so embarrass an important interest. We do not purpose here to discuss remedial measures, but only to briefly appeal to the spirit which would not see this government send to England for its ironclads or purchase torpedo-vessels in Liverpool.

THE many friends of Lieutenant Schwatka, both military and civil, will rejoice that he has had safe deliverance from the dangers of the frozen North, and that he has so admirably accomplished the objects of his adventurous undertaking. He brings back relics of the "Terror" and "Erebus," Sir John Franklin's ships, and he has definitely settled in the negative the rumored existence of the records of the Franklin expedition. While it is greatly to be lamented that all hope of recovering those records must be abandoned, it is well that the question of their existence should be finally disposed of. Lieutenant Schwatka's expedition successfully withstood the greatest degree of cold ever encountered by white men, and it demonstrated also the capacity of white men to adopt the food and way of living prevalent among the natives of the Arctic regions. To the pluck, persistence, energy, and good judgment of Lieutenant Schwatka is due the success of his expedition, and we congratulate him most heartily on its skillful conduct and happy termination.

BY a misadventure an imperfect copy of the title-page of our last number got into the hands of the compositors, and was printed for the whole edition before its defectiveness was discovered. It was owing to this accident that General Howard's name appeared without his rank and title, and that the names of Lieutenants T. B. M. Mason and R. R. Ingersoll, U.S.N., failed to appear in connection with the article on the capture of the "Huascar," of which they were jointly the authors.

SERVICE LITERATURE.

WITH its next number THE UNITED SERVICE completes the second year of its existence. Entering at its inception upon a field of effort which had previously been attempted with but indifferent financial success, it had much of discouragement and difficulty to overcome, and its most sanguine friends scarcely dared to regard it as other than a doubtful experiment. By careful management however, it has paid its way from the start, and while of course an enterprise of its class can never assume the proportions of a "bonanza," its publishers regard the practicability of maintaining a monthly periodical devoted to army and navy literature as demonstrated. It has during the past year suffered somewhat from the draft upon the time and attention of its publishers caused by the preparation of their "Naval Encyclopædia," which is now nearly finished, and will no longer prove a distracting influence. Notwithstanding this impediment to their attainment of their highest ideal in the conduct of the magazine, the publishers have received abundant assurance that THE UNITED SERVICE meets the hearty approval of its patrons, and in the coming year it is their intention to make their magazine a still more worthy exponent of the best thought of the two services. In the same catholic spirit which has animated them in the past, they will continue to welcome to its pages the free expression of individual opinion on every topic of living interest to the Army and Navy.

WE have received from the publishers, Messrs. A. Williams & Co., of Boston, the second revised edition of Admiral Preble's "History of the Flag." It is a beautifully gotten-up book, and contains a mass of information of the greatest value to every citizen of the United States, and especially to members of the military and naval services. A history of the flag is necessarily, to a large extent, a history of the country, while the romance and poetry that are interwoven with the subject relieve its perusal of the tedium which attaches to the reading of ordinary history. The book abounds in illustrations and, besides its carefully-traced lineage of the national standard, contains historical notices of naval and yacht club signals, seals and arms, and of the principal national songs of the United States, with a chronicle of the symbols, standards, banners, and flags of ancient and modern nations. The eminent fitness of its distinguished author for the task he has performed is of itself sufficient to create a presumption in favor of the work which we can assure our readers will be amply verified by its perusal.

MESSRS. D. APPLETON & Co., of New York, have just issued in very attractive form Lieutenant Totten's "Strategos," which is an exposition of a series of American games of war based upon military principles, and designed for the assistance both of beginners and advanced students in prosecuting the study of tactics, grand tactics, strategy, military history, and the various operations of war. The book is illustrated with numerous diagrams, and contains an appendix devoted to military statistics. Although we have not had time to thoroughly examine this work, we are satisfied from even a cursory inspection of it that it must prove a most valuable auxiliary to all students of the art of war.

ERRATA.—On page 525, second paragraph, first line, for "exterior" read "interior," and on page 526, fourth paragraph, third line, for "storage" read "stowage."